

THE MEDICAL JOURNAL OF AUSTRALIA

VOL. I.—26TH YEAR.

SYDNEY, SATURDAY, MARCH 4, 1939.

No. 9.

Table of Contents.

[The Whole of the Literary Matter in THE MEDICAL JOURNAL OF AUSTRALIA is Copyright.]

ORIGINAL ARTICLES—	Page.	MEDICAL SOCIETIES—	Page.
Dr. Alexander Thomson: A Medical Pioneer and his Period, by R. H. CROLL	331	The Medical Defence Society of Queensland	364
Perforating Injuries of Joints, by HUGH R. G. POATE	339	POST-GRADUATE WORK—	
The Treatment of Some Late Results of Perforating Injuries of Joints, by H. A. SWEETAPPLE, M.Ch.Orth., F.R.C.S.	342	Course in Psychiatry in Sydney	365
Property and Health, by E. P. DARK, M.C., M.B., Ch.M.	345	Post-Graduate Courses in Germany	365
REPORTS OF CASES—		CONGRESSES—	
An Unusual Complication of Hernia, by N. M. HARRY, M.S., F.R.C.S.	352	The Pan-Pacific Surgical Association	366
REVIEWS—		OBITUARY—	
Tissue Evolution	352	Eustace Russell	366
LEADING ARTICLES—		James Morison Gardiner	368
Surgery and Diabetes	353	Alfred John Spencer Cecil Roberts	368
CURRENT COMMENT—		Percy Moore Wood	368
Cigarette Smoking	354	CORRESPONDENCE—	
Pseudo-Tuberculosis in Man	355	The "Kenny Treatment" of Poliomyelitis	368
ABSTRACTS FROM CURRENT MEDICAL LITERATURE—		Shortage of Doctors in Victoria	369
Physiology	356	National Health Insurance	369
Biological Chemistry	356	BOOKS RECEIVED	369
BRITISH MEDICAL ASSOCIATION NEWS—		NOMINATIONS AND ELECTIONS	370
Scientific	358	DIARY FOR THE MONTH	370
		MEDICAL APPOINTMENTS VACANT, ETC.	370
		MEDICAL APPOINTMENTS: IMPORTANT NOTICE	370
		EDITORIAL NOTICES	370

DR. ALEXANDER THOMSON: A MEDICAL PIONEER AND HIS PERIOD.¹

By R. H. CROLL,
Victoria.

In congratulating the city of Geelong upon having arrived, in full health and vigour, at the venerable age of one hundred years, may I say that, in the list of the celebrations marking the event, I find nothing more fitting than this movement to honour Dr. Thomson, the man who built Geelong's first house and who later became its first mayor. Last year I wrote his life for Dr. Roland Wettenhall,

of Melbourne, whose late wife was a great-granddaughter of the redoubtable doctor. To the records from which that book was written I owe most of the facts forming the basis of this lecture. Alexander Thomson deserves more recognition than most historians have accorded him. I am delighted to have been given this opportunity to record my personal admiration and to voice your association's respect for the first member of your profession to practise in the baby settlement at Port Phillip, to which he came in 1836.

As Thomson was born in 1800, he was thirty-six years of age when, with his wife and daughter, he landed at Williamstown. He had lived through some troublesome days. It was a period of great stress—of what Shakespeare calls "alarums and excursions". France was the storm centre. Great

¹Read at a meeting of the Victorian Branch of the British Medical Association at Geelong on October 22, 1938.

battles were either in progress or threatened. England herself was threatened with invasion.

That was the background of the life of the period. Through it ran the more harmonious thread of exploration, notably that maritime research which was to prove of such importance to ourselves as Australians. It was truly an age of adventure, with strange seas being charted and new lands calling and beckoning the people of congested countries to come and enjoy liberty in virgin fields.

By the time the youthful surgeon was to make his initial voyage to these southern lands, Port Phillip had been discovered, Australian wool had been sold in England, Hobart had been founded, and Australia had abandoned the clumsy and curiously inappropriate name of New Holland, by which it was originally known, in favour of its present euphonious title. That, by the way, was a change which we owe to Flinders. Still, however, our principal imports were convicts. All our colonies, save Victoria and South Australia, continued to be dumping grounds for the criminals of the United Kingdom, and transports landed them in great numbers until the abolition of the system in 1850. It was as surgeon in one of these transports that Thomson first came to this country.

Let me hark back to his younger days. I have said that he was born in 1800. His home town was Aberdeen, his father a ship-owner in that "granite city". The school he attended was an academy kept by a Dr. Todd, of Tichfield, a school, by the way, in which the famous Lord Byron had received his earliest tuition. From the academy he passed on to the Aberdeen University, where he must have shown marked ability, for he emerged, at a very early age, with the degree of master of arts. Armed with this credential he emigrated to London, where he studied under Sir Everard Home, for some years President of the Royal College of Surgeons, and in that city he qualified as a surgeon. His progress and successes must have been remarkable, for we find him back in Aberdeen, marrying at the early age of twenty-four years, while the very next year, that is, in 1825, he set out on the first of his several voyages.

He had wedded Miss Barbara Dalrymple, of "World's End", Fraserburgh, Aberdeen. She could have had little thought at that time that she was eventually to be one of the first white women of a metropolis which today ranks amongst the great cities of the British Empire, or that she was to be co-founder with her husband of still another flourishing city, this city of Geelong. The wedding certificate shows that the marriage took place on March 24, 1824, "after due proclamation of banns".

Naturally the wife did not accompany Dr. Thomson on his maiden voyage; at least there is no evidence that she did, and the conditions on convict transports were so repellent that no one would, I imagine, have suffered them willingly.

It is difficult enough to understand why this young Scotsman should have decided to face such hardships himself, and why eventually he was to choose

the rough life of an almost unpeopled land in preference to the greater and assured comforts of his native country. He was well-to-do, for he had been left some £9,500 by his mother—a considerable fortune for those days.

However, with but a year's married life behind him, he responded to the call of adventure, and the family papers show that six times in all he made the same trip to Van Diemen's Land. It is a matter of regret that no records exist of his experiences when he was engaged in what must surely have been a distasteful task. Writing in 1854 to His Excellency Charles Joseph Latrobe, Lieutenant-Governor of the colony, Dr. Thomson mentioned that he had lent his "journal" (presumably his diary) to a friend, and that it could not be found. So was lost to us what must have been a human document indeed—the reactions of a medical man, young and impressionable, to the sights and sounds of the floating hells known as transports.

Novelists have attempted to picture the possibilities when hundreds of criminals were penned like sheep in the bowels of the old sailing ships, there to stay day and night for possibly five months, since a voyage might easily last that long. The notes of a medical man upon the incidents of these much execrated journeys must inevitably have had great historic value.

An obscure reference to the treatment of ophthalmia suggests that Dr. Thomson visited India during this period.

What he saw in Van Diemen's Land (later to be renamed Tasmania) evidently satisfied him that here was a place, crude and all as it was, that would repay the investment of his capital. So in 1831 he said a long farewell to his native soil and brought out his wife and little daughter Jane, to found a new home.

When they arrived at Hobart Town he possessed £6,975 in cash and bills. He applied for, and was awarded, a maximum land grant under the regulations of 1828, and his choice fell upon Break-o'-Day Plains, St. Patrick's Head, near the east coast. This concession of a maximum grant (4,000 acres) was allowed, although the period for which it was operative had expired, because of his several visits before 1828. Evidently during those visits he had secured interests in one at least of the primary industries, and there is a suggestion of partnership in the record that certain bales of wool "had been pressed by Mr. Atkinson on account of Captain Lusk and Dr. Thomson". That was in 1829.

In a dispatch dated February 11, 1832, from Governor Arthur to the Secretary of State, appears the statement that Dr. Thomson had purchased for £4,000 a steamboat (the *Surprise*), which would arrive the following month, and that he proposed to establish a ferry service between Hobart Town and Kangaroo Point. It is stated that this was the first steamship built in Australia.

An article in *The Australian Historical Society's Journal*, number 12, states that the *Surprise* was built at Neutral Harbour, North Shore (Sydney),

and used to ply between Sydney and Parramatta. Early in 1832 she was sent under canvas to Hobart Town. She was lent to the Government in May to rescue the women emigrants from England when the *Princess Royal* ran aground off Pittwater, and in September she began her ferry service. Next month Dr. Thomson obtained a contract from the Government, at £100 per annum, for the transport of mails and of official passengers and belongings.

That same year (1832) he had a second steamer built for the service. It was named the *Governor Arthur*. The newspapers of the day described it as a perfect model with a handsome figurehead of Colonel Arthur. It was designed and framed in England and was put together at Hobart Town. On October 11 a trial trip with a party on board was made from Hobart Town to Kangaroo Point in twelve minutes.

Seemingly because his station, "Logie", at Break-o'-Day Plains, was occupying more of his attention, Dr. Thomson sold out his shipping business in April, 1834, to George Watson, a shipbuilder of Hobart Town, who carried on the contract for a time. But the *Governor Arthur* was not included; it had been purchased the year before by a Launceston man, who used it as a tender between that town and George Town. It became the *Steam Packet*. Later, once more as the *Governor Arthur*, it crossed to Victoria, plied on the Yarra for a time, was sent to New Zealand as a schooner, and finally was broken up at Otago. A picture of the *Governor Arthur* appears as an illustration in *Georgiana's Journal*.

When Dr. Thomson was living in Hobart his home was "Hampden Cottage", probably in Hampden Road, where he would be near the waterfront. A personal note by Garryowen describes him as "a useful, goodnatured, near-sighted gentleman who rendered many kind services to the community of Hobart".

Letters still preserved show that he was on his Break-o'-Day estate, raising sheep and cattle, for the next two years. But that he was restless is proved by the interest he began to show in the discovery of fertile land about Port Phillip. He has recounted that John Batman and John Hilder Wedge invited him to join them in a colonizing scheme with that port as its objective. Only Thomson's dislike of joining a group, as this promised to be, prevented him from being one of the original party which founded Melbourne. As it was, he is credited with sending the first cattle—a draft of fifty Hereford cows—to the infant settlement, within six months of Batman's landing; they were landed at Point Gellibrand on November 9, 1835.

To the collection of huts, mainly sod, comprising the village which was to become Melbourne, came Dr. Thomson in March, 1836; so he was actually a resident of the infant city within a few months of its birth. With him were his wife and the six-year-old daughter Jane. Fellow passengers on this trip of the *Caledonia* were David Fisher, George Russell, James Strachan and Gatenby.

The Thomsons landed at Williamstown, then and for many years afterwards regarded as the port of Melbourne. They camped at Williamstown the first night. When they moved up the river to the settlement they pitched their tent almost under a great gum tree that stood on the present site of Saint Paul's Cathedral. One of their fellow passengers, David Fisher, has recounted that, while waiting for a boat to take him back to Van Diemen's Land, he and others filled in the time by building a house for Dr. Thomson "near the spot now occupied by St. Paul's Church". They completed it in about three weeks. This house stood, it is believed, on the land covered today by Hosie's Hotel, at the corner of Flinders and Elizabeth Streets, an allotment which was eventually purchased by the doctor at the first land sale on January 1, 1837. The average price realized at this sale was £35 the half-acre lot. Thomson's cost £46. With two dwellings, the family was now in a position to dispense hospitalities and take full part in such social life as the rapidly growing village afforded.

A reference in the instructions issued by the Colonial Secretary, Sydney, on September 14, 1836, points to Dr. Thomson, though he is not named, nor is the "rate of pay" indicated:

A gentleman having been appointed surgeon and catechist by the residents now at Port Phillip, you are authorized to place the name of this individual, if you think him qualified, on the Abstract of the District at his present rate of pay from the date of your landing, and to inform him that he is thenceforward to consider himself in the employment of this Government and placed under your orders.

Dr. Thomson was not a shareholder in the "Port Phillip Association", although very early invited to join by his friends Batman and Wedge. In his own words, preserved in a memorial which he presented to the Government in October, 1838, he "objected from his dislike to partnerships" and he "therefore formed a separate Establishment". But, coming to Port Phillip, he acted for the association as medical man and catechist—a catechist being one who was concerned with the religious health of the people.

Bonwick, writing in 1856, mentions that "the gentleman who held religious worship by the Yarra, and who was also to fulfil the duties of surgeon, was the present respected Mayor of Geelong, Dr. Thomson".

Dr. Thomson headed a letter of June 2, 1836, with the address, "Neramnew, Port Phillip". That adds another to the long list of names recorded by historians as having been given to the place in pioneer days. Batmania was one, Glenelg another, the Settlement a third, and such unepithetous titles as Bearbrass, Bearport, Bareheep, Bearbury and Dousta Galla were all in contemporary use.

The doctor became at once a force in religion and an aid to good government. Constituted authority was some five hundred bad bush miles away in Sydney, so law and order had to be maintained by the residents themselves. The conditions made for licence; and although Dr. Thomson could report (as he did to Lieutenant-Governor Latrobe in 1854)

that "many felt a pride in showing an example in upholding order, which was done without much trouble", and that "the people were very quiet and attended at my tent every Sunday morning for public worship", yet he presented himself to Captain Lonsdale, so the latter stated, "with a formidable brace of pistols in his belt" and the remark that "he was very glad I had arrived, as they were in a most lawless state and always in dread of being assaulted, or something to that effect".

It is traditional that Lonsdale and Thomson did not see eye to eye in certain matters, which probably explains the subacid tone of the former police magistrate's "Notes" on Thomson's statements printed in the volume "Letters from Victorian Pioneers". He throws doubt on Dr. Thomson's statement that he (Thomson) was appointed by the people as "general arbitrator", really judge, or assessor, for the inhabitants. However, there is evidence that the doctor did so act, though in conjunction with others, for his signature appears on a judgement as far back as May, 1836, awarding thirty shillings in the case of a dispute between Henry Batman (John's brother) and "John Pascal Fawkenner".

In the beginning, as had been stated, Dr. Thomson read the Church of England service each Sunday in his tent near the great gum tree. With characteristic energy he set to work to collect money for a church building. He told Latrobe that he did this in April, 1836. The building stood in William Street, between Bourke Street and Little Collins Street, and, according to the Reverend William Waterfield, the first Congregational minister, who preached in it on May 27, 1838, it was merely "a wooden shell shingled". Waterfield added that it was used by all denominations.

A gathering of the inhabitants, held on June 1, 1836, was the first public meeting held in the settlement. Dr. Thomson acted as secretary.

By direction of Sir Richard Bourke, Captain Lonsdale appointed Dr. Thomson, on October 19, 1836, as medical officer to the settlement at a salary of £200 *per annum*. That appointment he resigned on January 1, 1837. Early that year he left the budding metropolis to follow pastoral pursuits, and incidentally, as it turned out, to assist materially in the founding of still another great city, that of Geelong.

As early as May, 1836, Dr. Thomson had landed sheep at Point Henry, in Corio Bay, and he had selected as his sheep station the very land on which Geelong was to be built. Incidentally he chose and occupied Indented Head as a cattle station for Captain Swanston. So it was to his own territory that he went from Neramnew (Melbourne); and there, on the banks of the Barwon, he proceeded to build his homestead, which he named "Kardinia", the aboriginal word for "sunrise".

It is on record that the intrepid scientist (riding his grey pony and wearing his stove-pipe hat) drove his herd to Geelong, his men being fearful of an

encounter with the natives. In doing so he blazed the trail which is now the greatly used Princes Highway. Bonwick has declared in his "Port Phillip" (1856) that "the first who drove a bullock team between the two places (that is, Melbourne and Geelong) was the present Mayor of Geelong" (Dr. Thomson).

Messrs. Cowie and Stead and he had the whole of that rich province, the Western District, to themselves for eighteen months, dread of the aborigines preventing further settlement. They were afterwards to be joined by Roadknight, Drake, the Derwent Company (for which Thomson built a house later occupied by Mr. Fisher), Russell, Anderson, Brown, Read, McLeod, Steiglitz, Sutherland, Murray, Morris, Lloyd, Ware, Learmonth, Armytage, Raven, Pettett, Francis, Bates and others.

Dr. Thomson's station extended from what is now Belmont to Lake Connemare. His "River Station", at Buckley's Falls, on the Barwon, had been occupied by shepherds from May, 1836, while his residence was still in Melbourne. The famous Dr. John Dunmore Lang described thus the new home as he saw it in 1846:

Kardinia, Dr. Thomson's residence, is situated on the summit of the natural terrace to which I have already alluded, on the right bank of the Barwon, the garden occupying the steep declivity in front. It was one of the earliest habitations of civilized man in this country and as it was necessarily erected on Government land, on which of course it was not expedient to go to much expense to tempt the cupidity of some rival competitor at the next Crown land sale, it was constructed of slight materials and was not intended to have the character of permanence. But the hand of woman can give even a "bush house" an air of domesticity and neatness that imparts a charm to the wilderness and makes the solitary man rejoice. The shrubbery and the white-washed walls without, and the recently fresh-papered partitions within, with the other unequivocal traces of delicate female hands, did not require the adventitious aid either of books or of a pianoforte (although these were both in view) to proclaim that people of cultivated minds and refined taste were lodged within the bush cottage of "Kardinia"—a cottage which the reader must recollect was quite remarkable in the district in being able to boast a venerable antiquity of nearly ten years.

"Kardinia" today, in its some twenty acres of land, still faces down the grassy slope to the river; but it is no longer, nor has it been for many years, the "bush house" described by Lang, but a substantial stone mansion.

This Geelong period was the most fruitful and important of Dr. Thomson's life. Although he did not lose touch with the growing metropolis on the Yarra, he now set himself more particularly to advance his pastoral interests and assist the new township which steadily grew greater about him. But before I deal with his numerous Geelong activities it may be well to mention some of the exploratory excursions he made from that centre, usually in search of fresh country for selection.

Twice at least he went out with parties led by the Learmonth (Learmonth of "Ercildoune"). Thomas Learmonth, writing from Buninyong in 1853, recalls that there was "a tacit understanding that no one was to take up a station nearer than

three miles to another person". As more and still more adventurous people arrived in the colony, and as fear of natives lessened, the fringes of settlement were pushed farther and farther inland. But it must be remembered that when Dr. Thomson joined Thomas Learmonth, Darcy (Government surveyor), Hutton, Russell, Anderson and Fisher, in a trip inland in August, 1837, it was truly a journey of exploration, for the country was unsettled and almost unknown. To quote Learmonth: "A line drawn at little more than 25 miles from the shores of Port Phillip Bay comprised nearly the whole of the sheep stations at that time."

So it was across areas that no white man knew that the party rode, escorting a horse and cart loaded with a tent and provisions, and accompanied by an aboriginal as guide. As Billis and Kenyon truly say:

To undertake an expedition with few provisions except flour, tea and salt meat, and traverse unknown country for a hundred miles from a base, was in those days a more onerous performance than a trip across the continent might be to-day.

Their visible objective was a hill, Mount Buninyong, which broke the horizon to the north-west. They reached it after two days' travel, and were disappointed by "the thickly wooded and inferior nature" of the country. They had separated from the cart (one can easily imagine why in such country) and were short of food in consequence, so they started back, but in two parties, the one following down the Moorabool, the other continuing until it found the cart. Then it proceeded to Lake Burrumbeet, twenty miles north of Buninyong. The district was considered to be too distant for occupation, so all returned.

What wealth in gold they passed over without knowledge!

Rumours of a great salt lake, reported to be tidal, set the party in the field again. This time, in addition to the two Learmonth's and Dr. Thomson, there were C. Hutton, G. F. Read and W. Scott. This was in September, 1837. They went by Mount Gellibrand, crossed the "Wardy Yalloak", and reached a hill which still bears the name they gave it—Mount Elephant. They climbed it, and were much interested in the remarkable magnetic influence of the rocks, which was so great that "our pocket compasses were useless when laid on the ground, and would only traverse when we mounted one of our number on the shoulders of two of his companions". They passed on to the Cloven Hills, and returned eastward by the Pirron Yalloak, satisfied that the great sheet of water was an inland lake not connected with the sea. (It was Lake Corangamite.)

Dr. Thomson was one of a group which went out in search of the two unfortunate men, Messrs. Gellibrand and Hesse, who were lost, most inexplicably, while riding from Point Henry, near Geelong, to Melbourne, and it is believed were killed by the natives. Their track was found and followed towards the sources of the Barwon, in the vicinity

of the Aboriginal Mission Station of Buntingdale (thirty-seven miles from Geelong), but there all further traces of them were lost. The rolling of the surf on the ocean beach could be distinctly heard at the mission station over the coast range, and Dr. Thomson had the theory that, hearing the well-known sound, Mr. Gellibrand and his companion would immediately endeavour to make the best of their way to the coast.

In that event their fate would be sealed, as the country in that direction was an impenetrable jungle in which an experienced bushman would run the utmost risk of being lost, and out of which, in such an event, escape would be impossible.

Dr. Thomson was himself lost in these jungles for four days, but managed to get out again, almost perishing of hunger.

Akers, who acted as guide to Gellibrand and Hesse, was one of Dr. Thomson's stockmen.

Now a statement has been made that Point Henry, in Corio Bay, received its name from Lieutenant Henry, of H.M.S. *Rattlesnake*, which anchored in Port Phillip in September, 1836; but in the unpublished diary of Captain Edward Primrose Tregurtha, who came across from Van Diemen's Land in the brig *Henry* in August, 1836, appears this entry:

Several parties being anxious to proceed to Geelong in August we proceeded and surveyed the Harbour as far as Point Henry which was called after the brig, being the first vessel that had proceeded and anchored there.

He goes on in the most interesting fashion:

Having procured a dray from Dr. Thomson, under the escort of the giant, Buckley, we placed our boat in it and launched it, after an hour's march, into the Barwon River with the intention of exploring its embouchure. The crew comprised Captain Whiting, Messrs. McKillop, E. P. Tregurtha, Roadknight, Matson and J. Tregurtha. Our commencement was very propitious. We found a depth of from 2½ to 4 fathoms, with a moderate tide, and free of snags and stumps, a most lovely country and the river itself alive with wild fowl of all descriptions. After proceeding what we estimated about 10 miles, the river suddenly expanded itself out into what appeared a large lake and we were congratulating ourselves on the discoveries we should make, when suddenly our boat stuck in the mud, and all our efforts to get off were (at first) unavailing. . . . The next day we carted our boat back.

And so ended the voyage of the first boat ever launched upon the Barwon by a white man.

Billis and Kenyon, in their "Pastoral Pioneers", show that Dr. Thomson held stations at Barwon Falls (1836), Indented Head (August, 1836), Bream or Thomson's Creek (1840 to 1850), Mow-yong, east of Station Peak, in the You Yanga (1848), Avon, or Molly Plains (1852 to November, 1855), and that he was in partnership with William Armstrong in the River Station (1838 to January, 1851), Bream Creek (1841 to 1850), Black Forest (1847 to 1850), Avon or Molly Plains (March, 1846 to 1852), Werribee Plains (1848 to 1850). Other records suggest that he bought Armstrong out in part in 1851. Of the Avon Plains occupation up in our Mallee, William Taylor (Longerenong) wrote in 1853: "In June, 1846, Dr. Thomson brought sheep up, and laid claim to 150,000 acres."

Let me here quote an item of news which should be of more than passing interest in a wool-growing country. It is from the *Geelong Advertiser* of February 15, 1848, and reads thus:

The latest London Wool Sales showed the highest price given for lambs' wool was from the station of Messrs. Thomson and Armstrong on the Barwon River. About 10 bales fetched 2/3½ a lb.

"Kardinia", above the Barwon, was Dr. Thomson's home from 1837 to 1866, the year that he died. He found the district an uninhabited waste, and he lived to see an important town rise upon the land about him—a town destined to become second only to the metropolis.

His work as a pioneer of the Church will be dealt with later. A man of wide sympathies and broad views, he entered every field for the advancement of the general good, and his character, as well as his professional attainments and university training, gave him a high standing in the community. So we find him a member of many committees, and not infrequently acting as chairman of those meetings of settlers which necessarily take the place of authority before anything municipal has been created in a new settlement.

Sir Richard Bourke, Governor of New South Wales, visited Port Phillip in 1837, and on March 9 visited Geelong. He was accompanied by Admiral King and Captain Hunter. They desired to see as much of the country as possible, and Dr. Thomson escorted them along the Barwon.

A sale of town allotments at Geelong took place in Sydney in 1839; the fifty-three lots brought £2,784. A census in 1841 gave the number of Geelong residents as 454. That year Dr. Thomson formed one of a committee of eleven to assist Thomas Rickett, "Commissioner of Immigration", who was to proceed to England to engage servants "of the best description" under an indenture for three years.

The previous year he had become a director of the Marine Fire Insurance Company, and he had accepted the position of treasurer to the Geelong branch of the Methodist Missionary Society. In the diversity of his activities appear the names of the Port Phillip and Melbourne Bank (established 1839), the Port Phillip Steam Navigation Company (1840), the Melbourne Auction Company (1840), and the Pastoral and Agricultural Society of Australia Felix (1840).

For his period, and having regard to his origins, Dr. Thomson was extraordinarily liberal in his religious views. He was a Presbyterian, but, as we have seen, had no objection to conducting a Church of England service or allying himself with the Methodist Church. Religion and education were two causes he kept in the forefront of his many activities. He became a committeeman of the Auxiliary Bible Society of Australia Felix, also of the Port Phillip Theological Education Society. The subscription to the latter society was one guinea. I notice that Thomson gave ten guineas, so keen was he in the cause.

Again his liberality was displayed when subscriptions were collected to present a piece of plate to Captain Fyans in acknowledgement of that gentleman's efforts to procure fresh water for Geelong by the erection of the breakwater.

It was a busy life the doctor led. Presumably he still practised his profession, and he was certainly in the forefront of every public movement. He presided over a public meeting held at the Woolpack Inn, North Corio, on October 12, 1841, at which a committee, including the doctor, was created to frame an address to His Excellency Sir George Gipps upon his arrival in Geelong. The address was duly presented on October 27. When the Union Bank decided to open a branch in Geelong it did so on May 18, 1842, in a house owned by Dr. Thomson, who was director of the branch. Now, in 1842, the doctor comes definitely to the political platform. On May 9, at the conclusion of a meeting to adopt an address congratulating Her Majesty Queen Victoria upon the birth of a son, he introduced to the gathering a memorial for the extension of municipal privileges to Geelong. He was applauded and the memorial was readily signed; but soon some opposition grew, for many disapproved of the extension of privileges on the grounds that they would become a burden to the citizens. However, on June 1, at the largest meeting held in Geelong up to that date, the memorial was given enthusiastic support.

The period was one of struggle for recognition of Geelong as worthy of self-government, and meetings were the commonplace. Two more with which Dr. Thomson was concerned in 1842 had for their objects the presentation of the community's views on a "Bill for Election of Directors of Police and Public Works", and the creation of a petition asking that Geelong be made a free warehousing port (Melbourne had been so favoured in 1840).

It is worth recording that, in a country which now boasts an annual clip worth some fifty million pounds sterling, Dr. Thomson was the first to make advances on wool in hard cash. This is referred to in the following extract from the *Geelong Advertiser* of January 3, 1842:

Advances on Wool.—Hitherto the advances on wool have been made partly in cash and partly in bills. We do not mean to question the liberality of our merchants, but yet must hail with satisfaction any change of system which tends to benefit the wool-growing interest of the colony. One of our most spirited settlers has announced his intention of making advances in hard cash and nothing but cash. We have but to announce the fact without comment and leave the settlers, who are the best judges in such matters, to carry their produce to whatever market they think best. Dr. Thomson certainly deserves the thanks of the whole community for the manner in which he has come forward at the present juncture, as we have reason to believe that the benefit conferred upon the country will be not only substantial but extensive.

Reference will be found in many places to a boiling-down establishment owned by Dr. Thomson. One writer states the reason for this:

The desperate position of the pastoralists led to the formation of a company for the purpose of salting beef and exporting to England, but that undertaking fell

through, and in 1844 the first manufacturing enterprise was launched. This was the making of tallow by boiling down carcasses. As the problem of surplus sheep in Van Diemen's Land led originally to the occupation of Port Phillip, so the problem of surplus stock on the mainland resulted in the making of tallow.

The result was that, at the then current price of tallow the value of the sheep after paying the expenses of boiling down would be from 7/- to 9/- per head, for which the butchers were giving from 4/- to 5/- with little or no demand.

Many squatters sent some thousands of sheep every year to the various boiling-down works, and though at a later date the reduced price of tallow made the industry unprofitable, it may be said that in the period of depression the manufacture of tallow was an important factor in saving the pastoral industry from collapse. The quantity of tallow exported in 1844 was 429 tons, rising with subsequent fluctuations to 4,489 tons in 1850, but the trade eventually declined.

To trace Dr. Thomson's life for the next decade is to follow intimately the fortunes of Geelong. He was concerned with the removal of the bar at the mouth of the harbour (on which there was a report in 1841); with a search for coal, which cost him £250 a year; with the laying of a foundation stone of the Wesleyan Chapel; with a house-warming at Mr. Atkins's new Fyansford inn; with the Geelong Botanical Gardens; with the activities of the Benevolent Society; with a plan for civilizing the aborigines; with the establishment of a salting works (declared to be "the most complete in the colony"); with the founding of a Mechanics' Institution; with the welfare of the Geelong Hospital and Benevolent Asylum; with the provision of a town water supply; with all movements to forward education and promote religion. It may truly be said that no enterprise was too great or too small to enlist his services.

His parliamentary career must be dealt with separately. It is enough for the moment to mention that he was returned to the Legislative Council of New South Wales as one of the representatives of the district of Port Phillip, and that some years later he was elected to the Legislative Council of Victoria, and later still to the Legislative Assembly.

Yet another interest is disclosed in 1844, when he chartered the brig *Gilmore* in Sydney to visit Western Port and load with wattle bark. "Mimosa" bark was there in great quantity, but it could not be got aboard because of shallows, which necessitated the use of flat-bottomed boats.

Space is available for no more than short reference to the further incidents of this important period. When Geelong was incorporated in 1849 it had 8,000 inhabitants. Dr. Thomson had helped the movement from its very birth, and he was suitably rewarded by his election as first mayor of the municipality. He had stood as a candidate for the Kardinia Ward at the municipal elections on February 5, 1850, and had been duly returned. His election as alderman and mayor had followed on February 7, 1850. He was reelected mayor in November, 1850, again in 1855, again in 1856, and finally in 1857. He did not stand in 1858. The banquet he gave on retiring is referred to thus by his successor, Alderman Burrow:

It would be useless to describe the banquet set out in the hall at Kardinia except to state that every luxury of the season was redolent.

A testimonial presented to the doctor by the municipality in 1858 is signed by William Weire (Batman's son-in-law) as Town Clerk.

Thomson had urged on all occasions the advancement of Geelong, but that he had not neglected Melbourne is shown in many records. Not the least of his services was his action, when a Member of the Legislative Council of New South Wales, to secure a vote of £2,000 "to build a hospital for Melbourne". A letter in the possession of the family reveals, too, that in September, 1843, he appealed to the Government for a grant in aid of the Melbourne Mechanics' Institution, stating that its diffusion of literature had a "mild benignant and civilizing influence".

In 1853, when in the Legislative Council of Victoria, he succeeded in having the vote of £3,000 for the establishment of a "General and Public Library" increased, with a view of uniting library and museum.

One of his lesser-known experiments was the establishment of a newspaper in Geelong. He had had a difference with the editor of the *Advertiser*, and in those days of plain speaking he was given little quarter by that journal. So, on September 3, 1849, he came out with his *Victorian Colonist* as a rival to the *Advertiser*. The file in the Melbourne Public Library ends with number 50, printed in December, 1849. What success in circulation it had is not apparent, but there are indications that the breach between him and the *Advertiser* was later healed. The *Victorian Colonist* enabled him to put his case before the public.

A sideline amongst the doctor's many interests was his importation from Germany of vine dressers and wine makers, who were eventually settled about the Barrabool hills, where vineyards were in existence until *Phylloxera* caused their uprooting. In this connexion it is of more than passing interest to note that, carrying a letter from W. Westgarth, then in Germany, Prince Frederick of Schleswig-Holstein visited Geelong incognito in 1850 and was Dr. Thomson's guest at "Kardinia".

In the stern fight put up by the colonists generally against transportation of convicts, Dr. Thomson was an active participant. It can hardly be realized today how serious this matter became. A printed document found amongst the doctor's papers suggests that the colonists were even prepared to resort to armed force to prevent the entry of any more convicts to Australia. The document included a solemn pledge:

... to stand by each other and help each other to the utmost with our personal energies, our property, and if needful, our lives.

It concluded with a hope that was also a threat:

If it should ever be necessary to have recourse to the last remedy of the oppressed we appeal to God and the world as to whether we shall not have indefeasible right and eternal justice on our side.

The settlers won their point without having recourse to violence, and great were the rejoicings. Incidentally, out of this agitation was born what is practically the present Australian flag—a deep blue ground with the Union Jack in the corner and five white stars to represent the Southern Cross.

Dr. Thomson was in the thick of all this, of course. He was also a fervent fighter for the separation of the colony from New South Wales. That was just as burning a question as the transportation issue.

Separation was formally announced in 1851; but there was considerable delay in securing the new constitution for Victoria. It was not obtained, as a matter of fact, until 1855, and it is fair assumption that the delay might have been much greater but for Thomson. He had been elected to the Victorian Legislative Council in 1852, but he resigned his seat a couple of years later and went off to England, mainly, it is said, to urge the British Government to expedite the passage of the necessary bill.

A letter which he wrote to *The Argus* on his return indicated that, like the widow in the scriptures, what he could not get for love he managed to secure by importunity. A change of ministry delayed him, and he found that Lord John Russell had succeeded to the Colonial Office. But Lord John was then in Paris, on his way to Vienna. Not a bit daunted, our intrepid doctor went to Vienna too, ran Sir John to earth and urged the colonists' case so eloquently that the Minister promised to introduce the bill as soon as he returned. This he did, and Dr. Thomson had the satisfaction of seeing the bill become a statute that very year.

As early as 1846 he had plotted with others to secure a railway from Geelong to the metropolis, and in 1852 he gave notice in Parliament of his intention to introduce a bill to validate such a railway. Later he presented plans, and the bill incorporating the "Geelong and Melbourne Railway Company" was assented to on February 8, 1853. Within a month 5,100 shares had been applied for, and in April the first shareholders' meeting was held. Dr. Thomson was in the chair. Messrs. Thomson, Thorne, Hamatton and Nantes were elected directors. The capital was £350,000, divided into 17,500 shares of £20 each, issued and allotted on a deposit of £1 a share. The Government guaranteed 5% interest on the whole amount, and it gave the land along the line free and unconditionally. By May, 1856, all the capital had been paid up.

It took four years to complete the forty-four miles of railway, which became a going concern in June, 1857. At the dinner Dr. Thomson spoke on "the Hobson's Bay and other railways", and mentioned the Geelong-Ballarat Railway Company, of which he was chairman.

The line was eventually opened for traffic on April 10, 1862. It was in 1857 that Dr. Thomson stood for the Legislative Assembly of Victoria and was duly elected representative of Geelong. He lost no time in making his presence felt, and as a

writer has said, he championed his beloved municipality in season and out of season. He retired from the Assembly on April 11, 1859, so completing a political experience which embraced two Legislative Councils and a Legislative Assembly.

Dr. Thomson was a staunch Presbyterian, so keen and active indeed that it is not idle to cite him as one of the foremost in the founding of Presbyterianism in Victoria. He was remarkably tolerant and had a broad outlook. He considered it his duty to carry the principles of religion into every action of his life.

It is significant that the centenary celebrations of the Presbyterian Church of Victoria commenced on October 10, the date of a service held by the Reverend James Clow, at Geelong; for that, the first service in Victoria by a minister of the Church of Scotland, was held in Dr. Thomson's house.

Now began a campaign for the establishment of a Presbyterian Church in Geelong, and Dr. Thomson was one of the principals of the movement. He headed the list of subscribers with a donation of £40. That list is a remarkable document, testifying as it does to the general goodwill, for it contains the names not only of Presbyterians, but of members of the Church of England (one of whom actually became a guarantor when a loan was necessary) and of other denominations. The subscribers included sympathizers in Hobart Town, Melbourne, and even far-away England. John Pascoe Fawcner and Mrs. Fawcner each contributed. An increase in the minister's stipend was later refused by the Governor on the grounds that many more than the Presbyterians of the locality were on the list of supporters submitted!

Very soon £337 were raised and a meeting was held in the temporary place of worship, Thomson's wool shed, to appoint trustees. The doctor was made one, and he continued to act as secretary to the movement. It was he who was chosen to lay the foundation stone of the church, and he continued in close touch with its affairs until he left on his overseas visit.

Dr. Thomson's sympathetic handling of the aborigines and his efforts for their welfare well link up with his religious activities. He did much to assist any missionary enterprise on behalf of the natives, and acted as treasurer, as has already been stated, of the Geelong Branch of the Methodist Missionary Society. When, in 1848, the society decided to establish a mission for the local blacks, he presided at the meeting and said, *inter alia*:

A high responsibility rests with us in respect to those people . . . Essential distinctions of inferiority and superiority have been adduced in all ages of the world in palliation of the wrongs inflicted by man on man . . . The coloured skin and peculiar visage of the savage is placed against his title to humanity, and millions have been struck out of the family of God.

The aboriginal mission station of Buntingdale, situated some thirty-seven miles from Geelong, was near where Birregurra now stands. Dr. Thomson managed Buntingdale for a time in the interests of the mission.

Dr. Thomson died on January 1, 1866. He was an energetic, able man, whose life would have been much more prosperous if he had not devoted so much of it to the welfare of others. He was the right type to assist in colonization, for he had enterprise, learning and culture, and a genuine love of his fellow man, and he upheld at all times the dignity of the great profession of which he was a member. His wife was a worthy mate. She too is buried in Geelong's eastern cemetery, having outlived her husband by two years.

The daughter, spoken of as six years old when the family landed at Port Phillip, was the only child. In 1849 she married Mr. Henry Creswick, one of a family of three brothers who came from England in the forties, and whose name is closely associated with the pioneer days.

Let me conclude with a very brief summary.

Men have been named Empire builders with less claim to that title than was possessed by the Aberdeen surgeon, Alexander Thomson. Coming to a remote country, when a few mean huts were its only signs of civilization, he threw himself with vigour into its social, religious, pastoral, industrial and political life, and he lived to see the church soundly established, a legislature functioning, the surrounding lands settled, and means of transport assured—in short, to see a progressive State founded where a wilderness had been. In the whole of that advancement he played a significant and forceful part.

PERFORATING INJURIES OF JOINTS.¹

By HUGH R. G. POATE,
Sydney.

THE importance of a perforating injury to a joint is of real moment to both the patient and his medical attendant, so that the relative absence from current text-books of authoritative and practical information as to the immediate treatment of such a lesion is in itself ample justification for its consideration by both general and orthopædic surgeons.

By far the major part of my own experience was gained during my period of service with the Australian Imperial Force in the Great War, and the lessons then learned proved of great value in civil practice. Not only was there an opportunity for the immediate treatment in the dressing stations and casualty clearing stations, but later on in the base hospitals one could follow the various complications. After the war period came the problem of rehabilitating those who had been left with crippling deformities, then the task of enabling them to resume civil occupations and noting how the results stood up to the tests of time, strain and stress.

It is my intention to deal only with the immediate treatment of perforating injuries to joints, as Dr. Sweetapple is to consider the question of restoration of function to damaged joints.

In civil practice prior to the Great War the most common injuries met with were incised wounds of the phalangeal joints and the knee. These arose in a variety of ways, the usual ones being in butchers, cooks and scullery-men from knife wounds, in carpenters from chisels and in farm workers from ax wounds. With the mechanization of industry we then met with more punctured wounds, either from sharp, pointed tools or from flying fragments of metal, emery-stone *et cetera*. Also major lacerated wounds of joints increased in number, and especially compound fractures involving joints. Coincident with these changes in industrial accidents came the incursion of the motor car, which increased the occurrence of wounds into joints directly as a result of car accidents and indirectly from the types of tools employed in garages and workshops. As a result of these developments the casualty surgeon of today secures nearly as much experience in wounds of joints as if he were serving in a "nice little war".

Until recent years wounds of major joints were ranked in gravity along with wounds into the abdominal and chest cavities, the mortality rate being in the region of 50% to 60%, so that the lesser risk of amputation was the usual treatment. Von Bergmann, in the Russo-Turkish War of 1877, was the first man to attempt conservative methods in knee joint injuries, thinking doubtless that no worse results could be obtained by a trial of fresh methods. With non-interference, occlusive dressings and immobilization, his findings were startling; for in fifteen cases he had but one death, the other patients recovering, with movable joints.

During the earlier stages of the Great War this old lesson had been forgotten, and except for simple perforating wounds, attention was concentrated on drainage and vigorous irrigation with strong antiseptics. Desperation led in dealing with knee joints to the extreme measure of dividing the *ligamentum patellæ* and collateral ligaments so as to expose the whole joint as fully as possible. Naturally the results were lamentable, the death rate was high and the amputation rate enormous.

In 1915 Colonel H. M. W. Gray introduced the method of adequate immobilization, excision of damaged soft parts, light lavage with a non-irritating fluid after removal of any foreign body, closure of the capsule and of the soft parts, a small drain being left down to the capsule. It is essential to give a general anæsthetic in all cases. Coincident with the availability of the Thomas splint and its modifications, the results of perforating injuries to joints, both simple and complicated, underwent a metamorphosis, and healing by first intention was secured in 70% to 75% of cases.

In 1916 the Carrel-Dakin method of treating wounds became general, although at Gallipoli, in 1915, we had been using a hypochlorite solution

¹ Read at a meeting of the New South Wales Branch of the British Medical Association on December 3, 1938.

with success. This method of treating the superficial wounds saved many joints from secondary infections, resulting in further improvement of results. By this time also X rays units had been installed at most casualty clearing stations and proved of great value.

In 1917 the early and free excision of the injured soft tissues had become a standard method, and much work had been done towards perfecting the technique of primary or delayed primary suture of wounds. This still further improved results, as may be instanced by the fact that in one series of 79 wounds of major joints healing by first intention was obtained in 69 cases. Similarly, the amputation rate fell from 25% in 1916 to 7% in 1917, and the death rate from 15% to 8%. In the later stages, with fully experienced operating teams and improved facilities for operating at advanced dressing stations and casualty clearing stations, the results were still better. I mention these details as a younger generation of surgeons is now coming on the scene; they should not make the mistake of forgetting the lessons learned in and taught by those four dreadful years of the War and its mass surgery.

There have been introduced recently several substances for skin and wound sterilization which are invaluable in cleansing soft tissues and which have already proved themselves in checking infection and thus saving limb and life. I have had personal experience with aqueous solutions of "Dettol" and of "Merthiolate" in wounds and alcoholic solutions of "Merthiolate" and of "Metaphen" for skin sterilization, and can recommend them most highly.

In simple punctured wounds or small incised wounds into joints the first essential is to cleanse and sterilize the wound and surrounding area. Do not be tempted to probe such a wound unless it is thought that a foreign body is in its depth, and even then if it is a small one it is best left alone. Immobilize the joint thoroughly by some efficient means of splinting or in plaster, and await developments.

If the joint swells or becomes painful, it may be aspirated, but only with the most strict aseptic precautions. If the synovial fluid is clear, all is well, and the reaction is probably a simple synovitis only. If the fluid be even slightly turbid, take smears and make cultures so as to identify the organism present. Often the fluid will be blood-stained and it should be examined microscopically; for if there is no hæmolysis of the blood cells conditions are favourable, but if hæmolysis has occurred, the probability of an acute streptococcal infection is great.

Frequently a simple aspiration will relieve the patient of all symptoms, but if pain persists, the temperature or pulse rate rises, and the joint fills again quickly, further aspiration and examination of the fluid must be carried out. If it is turbid, a light lavage of the joint with a non-irritating antiseptic is permissible, but must be done gently. I have never seen any good come of the injection of

strong antiseptic solutions into a joint and would advise against the adoption of such a procedure.

If on aspiration frank pus is obtained or if there is a hæmolytic streptococcus present, early incision should be practised. Open the joint capsule sufficiently to permit of free drainage and institute Carrel-Dakin treatment or some efficient modification of it. If the injury is of a major joint and the symptoms do not abate and the patient's general condition grows worse, amputation may be called for.

Conservative treatment of wounds into joints on the lines indicated should be carried out whenever possible. Broadly speaking, age, debility and multiplicity of wounds, especially if associated with irreparable damage to main vessels and nerves, are contraindications, particularly if immediate treatment has not been possible and sepsis is evident, as it is not worth while risking your patient's life in attempting to save a severely damaged limb.

It should be remembered in all such injuries that the reaction of the tissues is a defensive one. There is a primary reaction to injury or mild bacterial invasion characterized by hyperæmia and swelling of the synovial membrane and surrounding joint capsule, increase in synovial fluid, spasm of the joint muscles, and associated partial loss of function.

The secondary reaction occurs as a result of a frank suppurative arthritis, with its associated destructive effects on all joint structures, resulting at best in fibrosis or bony ankylosis. If the primary line of defence holds good, the ultimate result as regards function is good, but it is to be remembered that the reaction of the synovial membrane to irritation or infection is practically identical with that of the peritoneum, and protective adhesions may develop and limit the spread of infection. If the joint is kept at rest until the inflammatory processes have subsided, the majority of the protective adhesions will be absorbed; but if the reaction has been a severe one, some adhesions or fibrous tissue may persist in and around the joint, thus limiting its function. These are the cases suitable for orthopaedic treatment, and judicious manipulation gives brilliant results, provided time has been given for complete subsidence of the primary inflammation.

If the first line of defence fails, the secondary mechanism comes into play, but results always in gross impairment or loss of function of the joint. These are the cases that try the patience and ingenuity of the orthopaedic surgeon in his attempt to restore even partial function. If the infection is so gross or so virulent that this second line of defence fails, then the patient is apt to go down in defeat or death unless amputation can rid him of the destroying infective focal area.

We have nowadays many reserves we can call in to aid the defence mechanism. It is uncommon in civil practice to meet with anaerobic infections in the form of tetanus or *Bacillus welchii* infection and spreading gangrene. Anaerobes seldom involve joints, but have their favourite site of infection in damaged soft tissues. Accordingly, if there has been

serious damage to muscles in particular, it is wise to administer prophylactic injections of tetanus antiserum and in some cases of gas gangrene antiserum.

Of the aerobic organisms, the hæmolytic streptococcus is the one to be most feared, and at the first sign of any infection with this organism large doses of polyvalent streptococcal antiserum should be given. We must not overlook the probable great value of sulphonamide given in correct dosage to ensure its maximum effect.

The great danger of the streptococcus is a spreading infection and the liability to infection of the blood stream. With the staphylococcus there is not the same tendency to a spreading or systemic infection; but its exotoxins exert a most destructive effect on soft tissues, cartilage and bone, so that in most cases of uncontrollable severe infection there is gross destruction of the joint as a whole, frequently with necrosis of bone and long-continued suppuration. Autogenous vaccines at times are helpful even if slow-acting, but "Uleron" (recently on the market) may be just as useful an ally in defeating the staphylococcus as are the other sulphonamides against the streptococcus.

Compound fractures with associated joint injury are always a problem. A great deal depends on the early institution of treatment on the lines indicated; for infection is not nearly so prone to develop in bone, unless severely damaged, as it is in a joint or in the soft tissues. Consequently always be thorough in excision by the knife (and not scissors) of all damaged soft tissues and in your cleansing of the wound and exposed bony surfaces, and above all try to secure as complete a closure of the synovial cavity as is possible by mobilization of the free areas of synovial membrane.

If it is not possible to close the joint completely, the wound may be packed with gauze soaked in sterilized liquid paraffin or "Vaseline", as this promotes closure by the formation of synovial adhesions. When the joint can be effectively cleansed and closed it is usually advisable to suture the soft tissues and skin over it loosely; but put in a small tube or "cigarette" glove drain down to the joint.

In the treatment of wounds seen some time after their infliction, it is wise after the cleansing process to pack lightly with gauze soaked in a watery solution of flavine, "Merthiolate" or "Dettol", and rely on delayed primary closure in two or three days, if all is well, or on secondary suture, if a mild infection has been controlled, in two or three weeks. Do not forget that immobilization must be adequate, and in most cases some extension is advisable. Also always bear in mind the oft-repeated dictum of the late Sir Robert Jones, that prevention of deformity is easier than its cure. This connotes adequate and efficient splinting, with complete rest of the involved joint; at the same time the energy and natural defence mechanism of the patient should be conserved, and he should be kept as free as possible from pain by the judicious administration of analgesics or sedatives.

Early mobilization of the joint, as soon as the wound is healed and inflammation has subsided, may be instituted in order to improve the ultimate functional result. It is of interest to note in this connexion that M. Willems, of the Belgian Army, treated numbers of suppurating joints by arthrotomy and early free movement, the patient being encouraged to do as much as he could himself in this way. He claimed good results; but the method never came into general use with British surgeons, being diametrically opposed to the principle of immobilization they had found so favourable.

One other point in immediate treatment to which I want to draw attention is the careful suture of surrounding ligaments or joint capsule, as this will render subsequent joint stability more likely and will assist the orthopaedic surgeon in his later restoration of function.

I recently saw a man who had an ax cut on the antero-medial aspect of one knee. The treatment given was to inject local anæsthetic, cleanse the wound and suture the infrapatellar tendon with catgut. All might have been well had the patient not been allowed out of bed a week later and told to use the limb, despite a considerable degree of synovitis. Shortly afterwards he had a fall, and not only tore apart the sutured infrapatellar tendon, but tore the ligaments nearly half-way round on each side of the joint.

I would ask you to exercise some discrimination and common sense in allowing early movement of damaged joints. In the words of Thomas, wait until the joint is "safe"; then only good can result. I hear that it is becoming fashionable to allow patients to walk some four days after removal of a meniscus. They can do it, but surely at the risk of aggravating the reactionary synovitis, with softening and stretching of the ligaments and the possibility of a weak joint. I prefer to remember the physiological processes concerned in the healing of a wound and to allow Nature her stipulated time to do her job to perfection as she will if allowed. Bear in mind the old adage that you can lead Nature, but never force her if you want a perfect result.

Injuries of joints occur in many ways and from many objects; but I think the most unusual one in my experience was that of a child who fell off a high wall, and when she landed her left knee came in contact with her upper teeth, which cut through into the suprapatellar pouch. One incisor tooth actually broke off after becoming embedded in the femur. The wound was carefully excised, the broken tooth removed, synovial membrane sutured and the soft tissues were closed. Healing occurred by first intention, and normal function was restored.

One point I should like to make in conclusion is never to be tempted to excise a badly wounded joint, as primary excisions under such conditions are seldom satisfactory and usually end in amputation later on. If a compound fracture into the joint is present, remove detached portions of bone, clean up the rest, and reduce as near to the normal as is possible.

I trust my remarks have not been too discursive; but I thought it better to tackle the subject in this way than to be dogmatic over a few principles as applicable to one or two joints only. If I have

been able to make you realize the essential principles in the treatment of penetrating wounds of major joints taught us in our war experience, my object will have been achieved in this discussion. For those who are interested in pursuing the subject of traumatic surgery and lessons learned in the Great War, I would recommend a report on the suture of gunshot wounds published in *The British Journal of Surgery*, Volume VI, 1918-1919, page 92, and the two volumes of "The British Official History of the War, Medical Services, Surgery of the War", 1922.

Summary.

Finally, I would summarize the immediate treatment of perforating wounds of joints as follows:

1. Institute treatment at the earliest possible moment after a preliminary skiagram has been taken.
2. A general anaesthetic is necessary, particularly if a major joint has been involved, or spinal analgesia may be practised for injuries to a lower limb.
3. Cleanse the skin with an approved antiseptic, preferably in an alcoholic solution.
4. If skin and soft parts have been badly damaged, excise cleanly with the scalpel, changing gloves, towels and instruments after this procedure is completed.
5. Light lavage of a major joint with a watery solution of a non-irritating antiseptic may be carried out.
6. Suture the synovial membrane as accurately as possible and then the soft parts, leaving in a small drain down to the joint.
7. If it is impracticable to close the joint cavity completely, pack the wound with "Vaseline" or paraffin gauze and suture over the soft parts two or three days later.
8. If the joint swells unduly and there is any pain or suspicion of sepsis, aspirate under strict aseptic precautions. This may be repeated.
9. Upon aspiration of turbid fluid, try to determine the infecting organism and institute appropriate treatment.
10. If frank sepsis supervenes, perform an arthrotomy to allow of adequate free drainage. Carrell-Dakin treatment should be instituted.
11. At all times keep the joint immobilized and efficiently splinted, probably with extension.
12. Always aim at the prevention of deformity during treatment, and if ankylosis is inevitable, keep the limb in the position which experience has taught gives the best functional results.
13. Use tetanus or gas gangrene antiserum if indicated.
14. Supplement the patient's powers of resistance in every way possible if sepsis supervenes.

THE TREATMENT OF SOME LATE RESULTS OF PERFORATING INJURIES OF JOINTS.*

By H. A. SWEETAPPLE, M.Ch.Orth., F.R.C.S. (Edinburgh),
Sydney.

THE late results of perforating injuries of joints depend chiefly upon the occurrence of sepsis, if we exclude for the moment the mechanical disorganization caused, for instance, by gunshot wounds. These late results include painful, stiff, ankylosed, deformed and chronically discharging joints. I propose to mention briefly what can sometimes be done for patients suffering from these sequelae, though I hope that I shall not lend point to the belief that an orthopaedic surgeon is a man who spends months saving a limb which would be better amputated.

THE PRINCIPLES OF TREATMENT.

The painful joint is painful because it possesses a limited range of movement or because active disease is present. One can therefore relieve the pain either by increasing the range of movement in selected cases, or by rendering the joint immobile in others.

Mobilization may be attempted only if septic processes have long settled down, and if the "test of recovery" (Thomas) shows no diminution of range of movement and no increase in deformity after the use of splints has been abandoned. The "test of recovery" is a procedure which Thomas practised in the days before X rays, and it is still more useful as a guide to recovery than the information supplied by any X ray film. He judged the time for permitting movement in a diseased or injured joint, partly empirically and partly clinically. The clinical facts which guided him were the absence of effusion, heat, redness, and muscle spasm. When these criteria had been absent for some time, he then applied what he called the "test of recovery". That is, he allowed the limb freedom to perform its normal function. If the degree of deformity became worse, or the range of movement less, then immobilization was resumed—the result of the test had been unfavourable. If, on the other hand, there occurred no increase in deformity, and there did occur an increase in the range of movement, then he permitted more and more activity.

The bearing the test of recovery has on our present problem is this. If the result is favourable, then a manipulation (or a series of manipulations) under anaesthesia will break down the limiting adhesions, increase the range of movement, and reduce the pain, because the painful limits of movement will not be reached so early. If, on the other hand, the result of the test is unfavourable, then active disease persists, and further immobilization (by splinting, plaster or arthrodesis) must be invoked. Various methods of applying these principles will be given later.

The stiff joint is stiff because of the presence of adhesions, because of muscle spasm or because of

*Read at a meeting of the New South Wales Branch of the British Medical Association on December 8, 1938.

incongruity of articulating surfaces. If adhesions are the cause, they should be broken down by force providing active inflammation is absent. The test of recovery decides this, but there is another test for which we are also indebted to Thomas. If a joint possesses restricted movement in every direction, it is the seat of arthritis; that is, active disease is present. If, however, the range in any one direction is intact, then, though movement is restricted in other directions, the cause of the restriction is the presence of adhesions. This rule is subject to more exceptions than is the test of recovery, but is a very useful one, and can be applied at one's first examination without waiting for the result of the test of recovery.

The method of applying the required force to break down adhesions varies with circumstances. It may be done by daily manipulations at the hands of the masseuse, by the surgeon under anaesthesia, or by gradually but continuously applied force by means of appropriate splinting. Examples of these methods will be given in the discussion of stiffness of the individual joints.

If the stiffness is due to muscle spasm, active disease is present, and immobilization is essential until the joint "settles down". If incongruity of joint surfaces is the sole cause, then manipulation can only cause damage, and relief can be obtained only by permanent splinting, or by arthrodesis, or by arthroplasty or pseudarthrosis.

Treatment for Deformity.

Prevention is the better part of treatment for deformity, and Dr. Poate has already covered this ground. I only wish to emphasize that it is very much easier to prevent a deformity than to cure one. Consequently, during treatment in the acute stages, a long view must constantly be taken, and one eye must always be on the probable state of the limb when the anxious early stages have passed. One needs to remember the direction in which each joint is likely to be deformed. Some joints become deformed in flexion (for instance, the knee and hip), and some in extension, and in some the force of gravity determines the posture (for example, the shoulder).

Deformity is due to muscle spasm, contracted scar tissue, fibrous ankylosis, or bony ankylosis. Muscle spasm can be allayed by splintage (but not by weight traction) and the deformity it causes corrected gradually.

Contracture of scar tissue causing deformity can be overcome by a series of forcible manipulations, or by continuous force on a suitable splint, or by excision of the scar and a plastic operation on the resulting raw area.

Fibrous ankylosis, which is intraarticular scar contracture, presents the same problem, and is amenable to the same scheme of treatment except excision of the scar. An additional method is available, however, namely: correction of the deformity by osteotomy. The most familiar example is the transtrochanteric osteotomy for flexion-adduction deformity of the hip.

Bony ankylosis, if causing deformity, is correctable only by a bone operation—either a linear osteotomy or a cuneiform osteotomy.

Treatment for Chronic Purulent Arthritis.

The chronically discharging joint offers an excellent lesson in several of the principles of orthopaedic treatment. The septic arthritis of the interphalangeal joint of the thumb following perforation by a knife in the peeling of potatoes is a familiar example. The common method of treatment is to persist with antiseptic baths and occasional incisions until the surgeon tires and the patient revolts and demands amputation. It is better to accept the inevitable at an early stage. The joint is ruined and will never function again once the septic process has eroded the articular cartilage of one or both partners to the joint. The best one can hope for is bony ankylosis in a favourable attitude. One can hasten this end by dissecting away all visibly diseased tissue—cutaneous, ligamentous and bony—by placing the bones in the position of election, by packing the wound with vaseline gauze, by immobilizing the member in plaster of Paris, and finally and most importantly, by leaving the plaster undisturbed for two months. The results of this method are very satisfactory. The wound is usually found to be practically healed, the active sepsis will have vanished, firm bony ankylosis will be present, and if the thumb has been placed in about 40° of flexion, it will be in a most useful, stable, and strong attitude. It will be capable of being opposed strongly to all the fingers, and the function of the hand will be equally useful for grasping a pencil or wielding a pick.

ELABORATION OF THE PRINCIPLES OF TREATMENT.

The Knee Joint.

I propose now to illustrate some of the principles of treatment by reference to certain representative joints. The knee offers a good example, being prone to pain, stiffness and deformity, or more commonly to all three, after perforating injuries. Except the interphalangeal joints, perforating injuries seem to affect this joint more frequently than any other. The perforation has been caused in a proportion by the scalpel.

If pain is the prominent symptom, and the pain is judged to be due to the presence of adhesions, the knee should be manipulated. Complete relaxation is required under anaesthesia, and full flexion and full extension are obtained by the necessary degree of force. The rotation movements are then reestablished, and this is done for every position between full flexion and full extension. The sound limb should be examined to determine the normal range for the particular patient. After recovery from the anaesthetic, the masseuse or the surgeon should attend, to convince the patient that the range is now complete and painless, and the joint should be moved through its full range every day to prevent the adhesions from reforming.

If the pain is due to arthritic changes, movement of the joint must be restricted. There is a large

number of ways of doing this, each applicable to a given degree of pain, and each a more effective method of immobilization than the one which goes before. First, there is the simple flannel bandage (which need not be red), applied tightly, and this is not to be despised, for it does relieve pain in the milder cases. Next in order is the compression bandage, consisting of alternate layers of cotton-wool and cotton bandage. This if applied for 15 centimetres (six inches) above the joint and 15 centimetres below it, restricts the movement considerably, and affords great comfort in the fairly mild cases. If this fails, a gutter aluminium back-splint, firmly bandaged in place, is still more effective, and plaster of Paris, though heavy, gives complete fixation. Even better is a removable celluloid splint, made to order on a plaster cast of the limb. A walking caliper goes one step further, in that it not only prevents movement, but reduces weight bearing.

If all these fail, the most perfect type of immobilization of all can be invoked, namely, arthrodesis. This should be delayed as long as possible if there has been sepsis, but when the indication is present, the effect, that is, abolition of pain, is certain. The resulting function for most occupations is quite good, certainly better than the disablement previously caused by pain.

Deformity of the Knee.

Flexion deformity of the knee is of course the most usual, and should have been prevented during the early stages. It is due either to muscle spasm, adhesions, fibrous ankylosis or to bony ankylosis. If it is due to muscle spasm it may be corrected by traction in the axis of the deformity. Fixed traction on a straight Thomas splint, with a pad of the required size in the popliteal fossa, is the best way. The size of the pad is reduced and the extension tapes are tightened daily, as the deformity becomes less.

If the deformity is the result of fibrous ankylosis, it must be corrected slowly, for two reasons. The first is that rapid and forcible straightening will inevitably produce posterior dislocation because the shortened hamstring muscles and capsule become the fulcrum about which movement will occur; as the long arm of the lever is moved forwards, the short arm will move backwards. The other reason is that if the flexion deformity is pronounced and of long standing, the popliteal vessels and nerves will be short. Rapid lengthening of these may result in occlusion of the vessels, or paralysis of the nerves.

Two good methods of gradual straightening of the flexed knee and prevention of posterior dislocation exist. The first is by the use of the "two-way" Thomas splint. This consists of a Thomas bed knee splint, bent at the knee to an angle somewhat less than the deformity. At the point of bending is attached, by a method which permits alteration of its axis, a duplicate of the distal half of the splint. The bent splint is applied in the usual way, with skin traction. The duplicate end is fixed by a thumb-screw at an angle of 90° to the lower part of the leg, and the two ends of a wide strap, which passes

behind the tibia, are pulled tightly to its fork end. By daily adjustment of the tension of these two extensions, gradual straightening of the knee is obtained, and posterior dislocation is prevented.

The other method is by the use of a wedging plaster. A plaster cast is applied from the gluteal fold to the lower third of the leg. It is made thick in the popliteal region, and while the plaster is still soft, this thickened region is cut with a sharp knife down to the skin, in the plane of the articular surfaces of the tibial condyles. When the plaster is hard, next day, a wedge of wood is tapped into the cut, forcing the cut surfaces apart, and straightening the plaster cast. It hinges on the intact, uncut anterior portion. The wedge is driven in further each day, according to the tolerance of the patient, until, in perhaps a week, the hinge cracks and breaks. A new wedging plaster is then applied, and correction continued from the new improved position. In this way full extension is gradually achieved, and posterior dislocation prevented.

If the deformity is due to bony ankylosis, it is simply corrected by a cuneiform osteotomy. It is important to remove at first less bone (a smaller wedge) than will be sufficient to correct the deformity; inadvertent removal of too much bone will result in hyperextension. Moreover, it is important for the apex of the wedge not to reach the popliteal surface. The popliteal vessels are consequently protected and the bridge of bone left uncut is easily fractured. The limb should be left with about 15° of flexion at the "knee"; ankylosis in full extension is less elegant and less convenient than slight flexion. Plaster splinting is probably the best method of post-operative fixation. Walking in this may be permitted after about a month. This is not painful, and hastens union. Displacement will not occur as the apposed surfaces are broad and the plaster is well fitting. As I mentioned previously, if the degree of flexion deformity is too great (more than 45°) the popliteal vessels and nerves will be in danger if the full amount of straightening is achieved at once. In such a case, the gap left after removal of the wedge is not fully closed at the time, but progressively, over a week or two, successive plaster splints giving less flexion are applied as the nutrition of the toes is found not to be endangered.

I have dealt with the knee joint rather fully in order to illustrate principles which may be applied to most other joints. The teaching of orthopaedic treatment is mostly a matter of instilling certain broad principles. Any given case can usually be analysed into several simple elements, and if one's principles are sound, a satisfactory line of attack can be mapped out. In this respect orthopaedic surgery differs from most of the other subjects in the curriculum, and a good working knowledge could be taught if only a little more time were allotted to it.

The Hip Joint.

The hip joint must seldom be the seat of perforations, except those caused by gunshot wounds. When

pain, stiffness or deformity follows, treatment is by rest, manipulation or arthrodesis, or if the stiffness is bilateral, by pseudarthrosis on one side. For the correction of deformity by osteotomy, the level chosen is usually the transtrochanteric region, and not as in the case of the knee, the level of the former joint. One practical point should be mentioned in the immediate post-operative care. If an attempt is made to abduct the limb to the required position and fix it in a plaster spica, the upper end of the lower fragment will almost certainly slip medially under the acetabulum, thereby causing unnecessary shortening. The cause of this is the postural contracture of the soft tissues on the medial side of the thigh, and it is analogous to the posterior dislocation of the tibia caused by too rapid straightening of the flexed knee. The safer, easier and, for the patient, more comfortable plan, is the use of the Jones abduction frame. Fixed traction is applied to both limbs by strapping, and counter traction is taken care of by the groin strap on the sound side. By daily tightening of the extension tapes on the leg that has been operated on, the soft tissues are gradually stretched. The sound side of the pelvis being held up by the groin strap, the other side descends, producing abduction at the site of osteotomy. Note that only one groin strap is used, and that on the sound side. Because the instrument supplies two, it is not necessary to use both.

The Ankle and Foot.

Deformity at the ankle and tarsus must so be corrected that the sole of the foot and the heel come squarely to the ground when the patient is walking in shoes. Varus or valgus deformity can be overcome by manual moulding, by the Thomas wrench, or by cuneiform osteotomy. Immobilization in plaster follows the latter two. Calcaneus or pronounced equinus deformity should be converted to that slight degree of equinus which will allow for the height of the heel of the shoe. The hallux when deformed is usually flexed. When the deformity is not due to bony ankylosis, correction is achieved by the application of a plaster cast, cut away over the dorsum of the hallux, and with a stout sole-piece, to withstand the thrust of successive felt wedges under the toe. If the deformity recurs, or if it is fixed by bony ankylosis, arthrodesis of the metatarso-phalangeal joint in about 10° of dorsiflexion gives a very satisfactory functional result.

The Upper Limb.

The joints of the upper limb require mobility rather than stability; but when ankylosis is inevitable, the optimal position for each joint should be selected and ensured by correct splinting. At the shoulder there should be about 70° of abduction; the elbow should be just in front of the plane of the sternum, and there should be that degree of external rotation which enables the axis of the elbow to bring the hand to the mouth. A faulty position can be corrected by repeated manipulations with fixation between times, if the ankylosis is fibrous. If there

is bony ankylosis, osteotomy at or near the former joint is needed.

The elbow resents manipulation. An increased range can seldom be obtained by this method; but the arc of movement can be transferred from a less to a more useful position. For instance, a position of 20° of flexion from the fully extended position is less useful than 10° on either side of the right angle, and if the former range exists, one or more manipulations will usually succeed in flexing the elbow to 80°. When the reaction subsides, it will probably be found that the elbow still possesses about 20° of movement, but in the more useful arc from 80° to 100°.

If there is no movement, the position just below the right angle is usually the most useful; but the patient's preference should be consulted.

At the wrist, a position of 15° of dorsiflexion permits a strong grip, and painless stability in this position allows very good function.

A permanently stiff finger is better amputated. If it is stiff in extension it is constantly in the way, and in addition, prevents the other fingers from closing. The loss of function in such a hand is more than equivalent to the loss of one finger. If stiff in flexion, it hampers the sound fingers even more. If, however, any two of the three joints possess nearly full movement, the function of the finger is usually satisfactory. In particular, arthrodesis of the terminal joint in about 30° of flexion is sound treatment for pain or instability, and gives a finger cosmetically normal and almost perfect in function for most occupations. I have already discussed the deliberate use of this procedure when a perforating wound has resulted in chronic sepsis of the joint and necrosis of the bone.

PROPERTY AND HEALTH.

By E. P. DARK, M.C., M.B., Ch.M.,
Katoomba, New South Wales.

In this attempt to examine the relation of poverty to disease, and to show that its abolition is an essential part of preventive medicine, it is impossible to avoid a brief discussion of politics and economics and a review of some of the workings of a system which accepts poverty or destitution as the inevitable lot of nearly half of the people.

I believe that medicine cannot begin to cope efficiently with the problem of preventing ill health until it makes this examination. A leading article in *THE MEDICAL JOURNAL OF AUSTRALIA* (October 8, 1938) expresses the same view:

It is realized that no significant advance in medical science can be made until those who practise it venture beyond what has hitherto been regarded as their proper sphere, and endeavour to control the human environment and to create, boldly and consciously, the conditions in which a healthy population can grow and flourish.

In the last few decades there has been a great deal of investigation into the relation of poverty

and disease. In all countries where this has been done the evidence is conclusive that poverty is the greatest single cause of disease and death in the world today.

Infant Mortality.

In considering infant mortality the results are similar whether one compares a poor area with a wealthy one, or a poor class with a wealthy class. In England (1933), at St. Helen's, the infant mortality was 116 per 1,000; at Oxford it was 32 per 1,000. In Melbourne (1932-1936) the rate in Fitzroy and Collingwood was 65.53; in Kew and Brighton it was 30.71.

When we examine it according to classes the difference is still more tragic. In England for the years 1921-1923 the infant mortality rate was examined by the Registrar-General, who divided the population into five classes. The rates for the two extremes are given in Table I.

TABLE I.
Infant Mortality Rates among Independent and Labouring Classes.

Age of Infant.	Mortality Rate per Thousand.	
	Independent Class.	Labouring Class.
First month	60	109
Second and third months	33	127
Second trimester	33	134
Third and fourth trimesters	32	137

We notice here not only a great disparity, but a disparity that increases with the age of the infant. In the first month the ratio was 69 to 109; in the third and fourth quarters it was 32 to 137.

In 1916-1917 the United States Children's Bureau investigated 14,608 children born at Baltimore in 1915. They were examined according to the fathers' wages, and the figures shown in Table II were obtained.

TABLE II.
Relation of Fathers' Income to Infant Mortality Rate (United States Children's Bureau).

Income per annum.	Infant Mortality Rate per Thousand.
1,850 dollars or over	23.3
1,250 to 1,849	34.9
850 to 1,249	69.9
650 to 849	95.6
550 to 649	107.9
450 to 549	128.9
Below 450	164.8

Infectious Diseases and Poverty.

Hippocrates was probably the first to note the greater mortality among poor than rich in infectious disease; he remarked that in the epidemic of Perinth free women suffered less than the slaves. In modern times, in the 1892 cholera epidemic at Hamburg, the mortality rate per 1,000 was 19 times greater among those earning less than 1,000 marks per annum than among those earning 50,000 marks or more. In the influenza epidemic of 1918 in the

United States of America, for every 100 who died among the wealthy class, 230 died among the destitute. At Cleveland, United States of America, in 1930, the death rate from tuberculosis per 100,000 was 215 among those paying 20 dollars or less per month for rent, and 84 among those paying 75 dollars or more. In the same city, more recently, the tuberculosis death rate, calculated on a standardized population, was 35 per 100,000 in the richer quarters and 710 in the poorest.

Income and Death Rate.

For the years 1921-1923 the Registrar-General of England made an analysis of the death rate for males from twenty-five to sixty-five years of age, divided into five social classes standardized as to age. The number 100 is taken to represent the average mortality for the whole group, and the death rate for each of the five classes is as follows:

Independent	81.2
Middle class	94.2
Skilled workmen	95.1
Semi-skilled workmen	100.7
Unskilled labourers	125.8

McGonigle and Kirby, during the period 1931-1934, made a thorough investigation of the death rate in a group of 777 families. Three hundred and sixty-nine of these families were unemployed, and numbered 1,572 individuals, an average of 4.26 per family; 408 were employed, and numbered 1,564 individuals, an average of 3.8 per family. The mean income of the unemployed families was 29s. 2½d. per week, and of the employed 51s. 6d. per week. The average annual standardized death rate for the period was as follows:

Unemployed	29.29
Employed	21.01

The difference in income was the only difference in living conditions of the two groups.

Another analysis of the influence of income on death rate was made over a four-year period (see Table III).

TABLE III.
The Influence of Income on Death Rate Observed over a Period of Four Years.

Weekly Income.	Standardized Death Rate.
25s. to 35s.	25.96
36s. to 45s.	19.34
46s. to 55s.	19.23
56s. to 65s.	15.13
75s. and over	11.32

Yet another analysis of the general (standardized) mortality was made at Finsbury in 1906. In a rich ward the death rate was 8 per 1,000. In a poor ward it was 36 per 1,000. In the same borough a different analysis gave the following results. In families occupying at least four rooms the death rate was 6.4 per 1,000; in families living in one room it was 39.

In the late autumn of 1927 an unintentional experiment on a fairly large scale, with excellent

controls, was carried out at Stockton-on-Tees. This experiment demonstrated that for people on a low income it is better to have a few shillings extra for food than to have all the other conditions of living improved. The experiment covered two exactly similar areas: Household Lane and Riverside. The rents in the former averaged 4s. 8d. per week, in the latter 4s. 7½d. About 90% of the families in both areas were unemployed. From 1923 to 1927 the standardized death rates were as follows:

Stockton-on-Tees	12-32
Household Lane	22-91
Riverside	26-10

The council of Stockton-on-Tees undertook a re-housing scheme and built at Mount Pleasant 152 model dwellings. In the late autumn of 1927, 152 families, comprising 710 individuals, moved from Household Lane to the beautiful new houses at Mount Pleasant; but still 90% of them were unemployed. Two hundred and eighty-nine families, comprising 1,298 individuals, remained in the old area, Riverside. All the conditions of living at Mount Pleasant were better than at Household Lane; but the rents averaged 9s. per week, while the income from which the rents had to be paid remained the same, so that each family which moved had 4s. 4d. per week less to spend on food, clothing, fuel and other sundries. Reducing the calculation to individuals, each had about 10d. per week less. What was the result? The standardized death rates for 1928-1932 were:

Stockton-on-Tees	12-07
Mount Pleasant	33-55
Riverside	22-78

During that period there was no epidemic or unusual happening to explain the rise in the Mount Pleasant death rate, so there is no other conclusion than that the lowering of the individual income by 10d. per week raised the death rate nearly 50%.

Income and Physique.

The effect of poverty on physique and on intelligence is just as malignant. The anthropometric committee of the British Association, dividing the population into five classes, found an average difference of height of 8.75 centimetres (three and a half inches) between the first and fifth classes. In school-children the average difference between the richest and poorest classes may reach 10.0 centimetres (four inches) in height and 5.9 kilograms (13 pounds) in weight.

Two groups of children were examined for height and weight. One group consisted of 125 "city" children, the parents of 105 of them being unemployed; in the other group were 124 children of parents belonging to the professional classes. The result was as shown in Table IV. In weight, 87.1% of the children of professional parents are normal or above it, against 44.8% of the "city" children. In height, 95.2% of the "professional" children are normal or better, as against 53% of

the "city" children. This difference is acquired. It is not inherited, and does not exist at birth unless the mother is living at starvation level. Up to three weeks there is no measurable difference between the classes in either weight or height; then it begins, and at thirteen weeks the first effects of poverty are visible enough.

TABLE IV.

Relation of Weight and Height of Children from "City" and Professional Classes (Anthropometric Committee of the British Medical Association).

Class.	Weight.			Height.		
	Above Normal.	Within Normal.	Below Normal.	Above Normal.	Within Normal.	Below Normal.
Professional ..	48.4	38.7	12.9	25.0	70.2	4.8
"City" ..	11.2	33.6	55.2	1.7	51.3	47.0

Repeated investigations by psychologists demonstrate that the intellect may be stunted as surely as the body. Up to two years of age they find no difference in the average mentality of the children of the richest and poorest classes. From then on the gap in average intelligence widens. The inevitable conclusion is that people are not poor because they are stunted and stupid; they are stunted and stupid because they are poor. It is a dreadful biological imperative from which there is no escape.

Each generation hands on to the next a sound heritage of body and mind, as good, on the average, among the unemployed living on 7s. 6d. per week as among the privileged paying 7s. 6d. for a glass of vintage wine; but it cannot remain as good while we allow it to be starved.

In Britain whole towns have the majority of their people unemployed. At Jarrow, in 1934, 80% of insured people were unemployed; in South Wales and many parts of the Midlands conditions were as bad, and employment has improved very little since then, as rearmament has affected mainly skilled tradesmen.

In May, 1933, Sir R. Aske, M.P. (Tyneside), said: "Half the adult patients treated at these [dispensaries] are undernourished; in 50% of cases the amount available for food . . . is less than 3s. per head per week, and in some cases it is as low as 2s." And that makes it clear why the loss of 10d. per week meant the difference between living and dying for so many of the unfortunates who were transferred to the model houses of Mount Pleasant.

Sir J. Boyd Orr's figures cannot be quoted too often. There are 4,500,000 people whose diet is grossly deficient in every constituent; 9,000,000 more deficient in all vitamins and minerals; and 9,000,000 more lacking some of the "protective" elements. This is not because the people do not know how to buy, but simply because they have not enough money.

Wages and Working Conditions.

Before noting what sort of wages some of those in full-time employment are getting, it would be

well to observe the result of a most careful investigation made by B. S. Rowntree in 1937. His conclusion is that the minimum wage upon which normal health can be maintained in England is, for a man, wife and three children, 53s. per week in the city and 41s. in the country. That he has not set an extravagant standard is seen from the fact that no butter is allowed, only margarine. Yet in a great many pits miners get 30s. per week; agricultural wages are 32s. per week; cotton card-room workers get 22s. per week and are forced to speed up at that; Midland factory girls, at fifteen, get 12s. 9d. per week. Do they get an increase in wages at sixteen? No; although they are often the only members of the family working, they are dismissed so that another batch of fifteen-year-olds can be hired at 12s. 9d. The hours in some cases are as shocking as the wages, juveniles in the distributing trades being legally worked 74 hours a week.

In mining, conditions of work are often as bad as the pay. To effect economies there are pits where one party of repairers is employed instead of six, and gas precautions and stone-dusting are notoriously neglected. Steel archways for supporting the roofs on main haulage roads were introduced in 1890 and were officially approved. They would make the roads almost completely safe; but they are not much used, so the mining accident rate remains tragically high.

Housing.

From an enormous mass of examples of overcrowding I shall quote only two, bad, but by no means exceptional.

In Bolton a house with two small bedrooms was occupied by twelve people: man, wife, four daughters, aged respectively twenty-one, eighteen, thirteen and ten years, and six sons, aged fifteen, eleven, eight, six, three and one year.

In the Gerald Street area in Liverpool there are 403 persons per acre. Eight tennis courts with only a moderate amount of spare room at the ends and side-lines would fit into an acre; this gives a fairly graphic picture: 50 people to the tennis court.

In case we should feel self-righteous and say "that couldn't happen here", let us see what are the housing conditions in Melbourne. In 1913 a select committee of the Legislative Assembly found that the housing was disgraceful and a menace to the health of the community; the same areas are even worse today. "Land has been so avariciously used in some instances that two or three houses have been erected on an area which was originally intended to be the back yard of a house facing a major street." In Carlton there are houses fronting a four-foot right-of-way, facing a factory wall. In Richmond the streets are so close together that houses are built on blocks of land only 35 feet deep, and to subdivide lots streets twelve feet wide have been planned. In Collingwood there are scores of houses on twelve-foot allotments, and one house is on an allotment eight feet five inches

wide. Near Dudley Street, in West Melbourne, within two miles of the general post office, there is a settlement of people who have made shelters from materials rescued from the council's rubbish tip. The inhabitants, with sardonic humour, call them "Dudley Flats". There is no sanitation, and the only water supply is from their miserable roofs or from a stand-pipe a mile and a half from some of the "flats".

In some of these areas there are fifty dwelling places to the acre, and the houses are often dreadfully overcrowded. Here are some examples:

A.—In bedroom I are a man and his wife and three daughters, aged ten, nine and six years; in bedroom II, three boys, aged sixteen, thirteen and eleven years; in bedroom III, the occupier's father and mother; in the dining room, a child on a couch; in the passage, a baby, aged two years; in a lean-to, two girls, aged sixteen and ten years; in a sleep-out in the yard, the brother-in-law and a child.

B.—In South Melbourne were three three-roomed houses, each holding two adults and seven children; all of these houses were infested with rats and vermin.

C.—A three-roomed house in Collingwood was occupied by two adults and eight children. Four people slept in each of two beds; in one, the mother and children, aged three, four and five years; in the other, children aged ten, nine, seven and six years.

Six thousand three hundred and ninety houses were inspected internally. Many had three, four and five rooms, one behind the other, only the back and front rooms having windows. The other rooms get light and air from a door opening on a narrow passage. Such rooms are often occupied by two or three adults. In 69% of the houses inspected there were rooms ventilated only in this way; 38.9% were infested with rats; 17.6% were infested with vermin; 32% had no bath; 51% had no wash-house; 88% had no water in the kitchen; often the only water was a tap over a gully-trap in the yard. Many of the houses were so dilapidated that it was impossible to get rid of vermin; but the rents were still rising. Some of the physical results of life under such conditions are that infectious disease and infant mortality rates are both more than twice as high as in the outer suburbs. One of the moral results is that juvenile delinquency in proportion to population is five times as high as in the outer suburbs.

The children who are born here, many of them inevitably destined to death in infancy, or to become diseased, or to be criminals, have at birth, as has been shown, just the same natural inheritance of mental and bodily well-being as the children of the professional classes.

So far no housing scheme in Melbourne has been of any use in clearing slums, because the lowest rent is 14s. per week for a house with one bedroom, while the average total family income of those living in the worst type of slum property is £1 16s. 8d. per week, so that it is impossible for them to pay the rent without starving. Slum clearance will remain a farce until those in charge of it realize that the slum dweller cannot pay an economic rent for even

the cheapest kind of decent house. Either the rent must be lowered or the income raised; or the slums left as they are, which is probably what will be done for a long time yet, and the country will go on paying a bill it cannot possibly afford, in disease, depravity and death.

The Government Attitude.

What has property, as represented by the present British Government, done to deal with the poverty, the distress, the unnecessary sickness and death, which are still unchecked in Britain today? It has not allowed many to die of actual starvation, though scores of thousands must have died because of semi-starvation. It has supplied a "dole", which certainly keeps most unemployed alive; it has supplied under-nourished children with milk and meals in schools under rather rigid regulations, which will be mentioned again; it has assisted in the building of a great many houses which have failed in their object, for reasons already outlined; it has established a number of labour camps, where men work for their keep and about 3s. per week "pocket money". These labour camps are no doubt of some value, granted that the Government is determined to do good only in a "cheap and nasty" way. Mr. Teeling is delighted because he found that the men, generally between twenty-five and thirty years of age, gained, on the average, 4.0 kilograms (nine pounds) in weight in twelve weeks; but he fails to show any realization of the shocking malnutrition that implies. He and many other conservatives would like to see these camps made compulsory; but evidently they fear that the unemployed are not yet despairing enough to accept this bitter substitute for their reasonable hopes of a steady job, a decent wage and freedom. This is by no means a complete list of the attempts at palliation which have been made by the Government; but it is now necessary to deal with some of the really constructive suggestions which governments have refused to carry out.

1. In South Wales, since 1934, many closed pits have become waterlogged; other pits, which are still producing coal and which have workings at a lower level, are menaced. Schemes for draining the waterlogged pits were drawn up and approved by competent engineers, and the cost was estimated at £1,412,530, practically all of which would have been wages. The scheme would have given work to the unemployed in a very distressed area and would have removed an ever-constant danger to the lives of hundreds of miners; but the mine owners, the representatives of property, did not approve and nothing was done.

2. In Jarrow, to relieve the dreadful mess of unemployment already mentioned, it was proposed in 1934 to build modern steel-works, which would employ at the start from 3,000 to 4,000 men. A sum of £4,000,000 was raised. The existence of a monopoly in the heavy industries made it necessary to cooperate with the British Iron and Steel Federation. The proposed works, being planned on

the most modern lines, would have been able to produce steel more cheaply than the British Iron and Steel Federation, so the plan was strangled at birth, and Jarrow is still a derelict area.

3. It was proposed to build a road bridge over the River Severn, to give access from England to South Wales by a much shorter route; for example, the distance from Bristol to Cardiff would be forty miles instead of ninety-three. It was agreed that this road would "facilitate economic development" in the distressed area of South Wales. The estimated cost was £2,480,000, and the Ministry of Transport, which approved the scheme, promised financial support. This time the scheme was blocked by the vested interest represented by the railway companies, through their influence with the select committee of the House of Commons, which made the final decision.

It is interesting to see how the British Government administered the relief measures they had sanctioned. Soon after the depression began, two modifications were made in relief: (i) a 10% reduction and (ii) the means test. This made the amount of relief dependent on the total income received by any family living under one roof. The working of this is best illustrated by examples.

Example I.—A man, his wife, two dependent children and an older daughter were all living together; the older daughter was the only one employed, and she earned 30s. per week. The man's allowance was therefore reduced by 15s. per week.

Example II.—A single man was living with his sister, her husband and their family. The husband was working broken time; but the unemployed brother-in-law could draw no relief while living there.

Conservatives have always been concerned for the "sanctity of the home"; but they do not seem to have minded breaking up tens of thousands of homes in order to save £27,750,000 in super-tax; for that is the amount which, in October, 1933, the British Minister for Labour claimed had been saved by the means test, and another £26,750,000 by the 10% relief cut in wages. But this saving of £54,500,000 appears not entirely a matter for congratulation if we examine its cost in physical deterioration, sickness and death. It is not difficult to estimate the number of deaths by means of the table already quoted, in which it was demonstrated that a rise of income of 5s. 6d. per week reduced the death rate from 29.29 to 21.01, a reduction of about 8.25 per 1,000. The £54,500,000 saved could have given that extra 5s. 6d. per week to over three and a half million persons during the year—a saving of about 29,000 lives. The capital value of a life has been reckoned at about £10,000; I leave the rest of the profit and loss account to those who read this article. But perhaps a man's life is not worth quite so much, since our statesmen have decided that there will always be "a hard core of unemployment". This "saving" has been going on for over six years, so that England has lost about 180,000 lives—quite a useful army corps which the statesmen of England might like to have available now. To say that that

trifling economy was necessary would be simply stupid, when it is remembered that almost immediately afterwards the men who were so pleased with it were proposing to spend £500,000,000 a year for three years on armaments.

Let us see now how the living conditions of the present generation have affected the prospects of that very rearmament. Arms are not much use without fit men to wield them. In the year ending September, 1934, 80,203 recruits offered themselves for enlistment; 54,639 were rejected as unfit, chiefly on medical grounds.

There is still more of the tragic cheese-paring to describe. Up to September, 1935, the Board of Education insisted that free meals should be given only to children who could be medically certified as suffering from malnutrition. That ruling was altered only after bitter protests, such as that of Dr. H. Paul (May, 1935):

There is nothing in the 1921 Act about a trial period of starvation . . . why does the Board insist, contrary to the letter of the Act, and contrary to the whole spirit of preventive medicine, that the child must wait until the lack of food actually produces diagnosable malnutrition?

Perhaps the crowning piece of cruel stupidity was achieved by the Blackburn Public Assistance Committee, who administered the means test there. If a mother fed her baby on the breast they cut down her allowance.

One more crooked device for saving money at the expense of lives will be given. In 1933 a committee of the British Medical Association worked out a minimum diet necessary for existence for an adult male, and it cost 5s. 11d. per week. The Ministry of Health (note the Health) was shocked at such extravagance, and succeeded in cutting the amount to 5s. 1½d. by the brilliantly ingenious device of basing their calculations on prices for goods purchased in bulk. So the saving of money and the squandering of lives still go on in Merry England, which is crying aloud for fit men and preparing to spend another £1,000,000,000 or so on armaments. And on the day I write this the cables state that the cabinet fears that in order to carry out the rearmament programme it may be necessary to "curtail the social services and reduce the standard of living". It seems incredible that any body of statesmen should deliberately adopt a policy which must inevitably still further reduce their effective man power, even if they thought only in terms of military necessity, forgetting human values altogether. One might have hoped that they would have learnt what Jules Rochard knew half a century ago:

Every judicious expense incurred in the name of hygiene is an economy; nothing is more expensive than sickness, unless it be death; of all waste, that of human life is the most ruinous.

It is that lesson which our profession should be publicly teaching; an individual doctor sometimes tries, but not the profession speaking as a body; it is silent.

Capital and Health.

Obviously, while the rights of property are considered more important than the rights of man, brutal and stupid things will still be done.

At Lyons, in 1849, girls earned 300 francs a year working fourteen hours a day at looms where they were suspended by a strap in order that they might use both hands and feet for their work. That could not happen now. Not quite, but very nearly, where there is neither law nor strong public opinion to control the brutalities of capital hunting for a profit. Only a few years ago the majority of the "foreign colony" in Shanghai considered it "ridiculous and unheard of" when the Chinese women, working eleven hours a day, standing, without intervals for meals, demanded the provision of benches and the abolition of labour for children under ten years old.

One more indication may be given that property is careless of any interests other than its own. From 1932 to 1936 the average increase in productive capacity per worker in all British industries was 18.6%. In some cases the rise was enormous; for instance: pig iron, 55%; steel, 30%; artificial silk, 64%; cars and aircraft, 43%. On the average, wages remained the same, and prices remained the same; the whole profit went to the propertied classes. That conclusion is supported by the index of industrial profits; taking the 1929 level as 100, it was, in 1932, 63.1 and, in 1936, 96.5. One may presume that industrial profits are still rising, as, during 1937, nearly a hundred new names were added to the glorious company of British millionaires. But misery, disease and death are still with the unemployed in the distressed areas.

When a disproportionate share of the profits of industry goes in large amounts into a few hands, it has another evil effect besides limiting the workers' share. The workers' share is all spent on rental and consumer's goods, which at once disappear and must be replaced and are thus a direct stimulus to industry. But by far the greater proportion of what goes to the few wealthy men cannot be spent on consumer's goods, but must be either invested in capital goods at home or sent abroad for investment. In either case it is much less stimulus to industry than if the same amount had been spent on consumer's goods—an impossibility unless it is widely distributed. If more than enough for replacement and reasonable expansion is spent on capital goods, the result is actually harmful to the economic life of the country. If any reader wants to know more of this, let him read the story of the unwanted gramophone and wireless companies which sprang up in England after the War, or the history of American motor-car production. There is such a surplus of machinery in the American motor-car industry that the three greatest corporations could make in two months every car which could be sold in a year.

In this criticism of the workings of capital I want it to be clearly understood that I do not

include the capitalist himself, who, in his personal relationships, is probably a decent and kindly human being. In his economic relationships he is often helpless, because capitalism is an impersonal force which dominates its creators. Henry Ford was a kindly idealist, who honestly believed that he could give his 200,000 employees permanent prosperity by paying high wages and producing as many cars as possible. Having built up his vast £200,000,000 mass of capital, he found that what he was driven into giving them was unemployment, misery and death—death even from machine guns. A force which drives decent and kindly men to such an end may reasonably be suspected of being not altogether a beneficent force.

Health in the Union of Soviet Socialist Republics.

In speaking of Russia I am quoting H. E. Sigerist, who is Professor of the History of Medicine in the Johns Hopkins University and who spent two years in Russia investigating the system of medicine there. It is also necessary to remember that in dealing with conditions in the Union of Soviet Socialist Republics one is not dealing with a country like England, but with a group of nations almost as large and as diverse as the British Empire. At the time of the revolution no part was so economically advanced as England, and some parts were as backward as India. In Czarist times 98% of women had no medical aid in childbirth. Now practically 100% of the births in cities are in hospitals. Maternity beds in 1914 numbered 4,709, and in 1936, 48,250. Every woman in industry gets eight weeks' holiday before and after confinement, on full pay. The infant death rate in 1914 was 250 per 1,000; in 1936 it was 118 per 1,000. In the various trades, in order to protect workers, the day is shortened and vacations (on full pay) are lengthened. For example, mercury workers have a five-hour day and an annual vacation of six weeks, which may be spent at a health resort in the Crimea.

There has been in Russia a steady reduction in industrial accidents (see Table V).

TABLE V.

Accidents in Industry in the Union of Soviet Socialist Republics.

Industry.	Rate per Thousand in 1928.	Rate per Thousand in 1935.
Coal-mining	465.0	291.6
Ore-mining	334.2	192.1
Textile industry	74.4	48.0

The story of smallpox shows what has been done in another part of the field of preventive medicine. In 1919 vaccination was made compulsory; but it was an enormous undertaking, and in 1936 there were still some districts in which the population was unvaccinated in Russia. The incidence of smallpox per 10,000 of population from 1890 to 1913 varied from 48 to 118; in 1929 it was 0.37, in 1935

it was 0.2, and in 1936 it was 0.025. No cases were reported in the first two months of 1937, when Sigerist's book closes.

If capitalism cannot learn how to distribute what it can so abundantly produce, it must change or perish. It is, of course, bound to change, as the economic relationships of man have been steadily changing since the dawn of history during man's constant struggle for a higher standard of food, better shelter and greater happiness. He would be a very bitter cynic who would claim that we have reached the ultimate good.

Conclusions.

I have dealt mainly with conditions in England because a great many more accurate investigations have been made there, and because, looking at those conditions, we can see what is at the end of a road we must not travel.

Here in Australia we have the beginnings of all the tragic conditions we see in England. We have slums which must be as bad, though not as extensive; we have our 100,000 men unemployed, existing on relief work, on the dole of 7s. 6d. per week; we have malnutrition, to the extent of 33%, of a group of children examined in Sydney, and we even have what may justly be called a distressed area in our northern coalfields. Whether we travel far along that road or whether we make a better one depends more upon the medical profession than upon any other body of men; and there are many things which we must do before we can lay honest claim to care anything about preventive medicine.

We must supplement the work of the recent inquiry into nutrition by finding out how much of the existing malnutrition is caused by lack of money and how much depends on other causes which can also be removed.

We must follow the example of the British Medical Association in England and find out the cost of a diet which will ensure optimum nutrition.

We must tell the public and the governments that we have not yet got that tragic gap in physique and intelligence and expectation of life between the rich and the poor, but that it will inevitably come unless the drift towards poverty is checked.

We must show that any attempt to get physical fitness is a farce unless everyone, especially every child, is adequately fed.

All these things are urgent, but there is one thing more urgent still. Australia is committed to a policy of rearmament. The Government must be told in a way it cannot ignore, that its most fundamental need is for fit men, and that it cannot have fit men until it can assure adequate food, decent shelter and work for all.

This spreading of essential knowledge can be effectively done only by us through our official associations. If we do it we shall prove a genuine devotion to preventive medicine and a true patriotism.

Bibliography.

- W. Hannington: "The Problem of the Distressed Areas", 1937.
 United States of America Department of Agriculture: "Diets at Four Levels of Nutritive Content and Cost", 1933.
 R. H. Britten: "The Relation between Housing and Health", 1935.
 H. E. Sigerist: "Socialised Medicine in the Soviet Union", 1937.
 G. C. M. McGonigle and J. Kirby: "Poverty and Public Health", 1937.
 "Housing Investigation and Slum Abolition Board (1936-37), First (Progress) Report", Melbourne, 1937.
 A. Hutt: "The Condition of the Working Classes in England", 1933.
 René Sand: "Health and Human Progress", 1935.
 B. Seeborn Rowntree: "The Human Needs of Labour", 1937.
 William Teeling: "Why Britain Prospers", 1933.
 "Final Report of the Commonwealth Advisory Council on Nutrition", August, 1938.

Reports of Cases.

AN UNUSUAL COMPLICATION OF HERNIA.

By N. M. HARRY, M.S., F.R.C.S.,

Associate Assistant to In-Patient Surgeon,
 Royal Melbourne Hospital.

RARE complications of a common disease are always of interest in diagnosis, although there may be nothing unique in the treatment.

The patient, a male, aged seventy-six years, stated that he suffered from a rupture for many years, and that while he was unable to control it with a truss the swelling did not greatly inconvenience him. Twenty-four hours prior to his admission to hospital pain developed in the region of the scrotum with dramatic suddenness, and within a few hours the hernia increased to several times its usual size.

The pain continued to be severe until the time of examination. However, there was a complete absence of colicky abdominal pain, no vomiting had occurred and the bowels had acted. Urinary symptoms were not present.

On examination the pulse and temperature were normal, the systolic blood pressure read 160 millimetres of mercury and the diastolic was 100 millimetres. The tongue was a little furred, but moist. Abdominal distension was absent.

A large hernia 17.5 centimetres (seven inches) long and 10.0 centimetres (four inches) wide occupied the left inguinal canal and the scrotum. This was tense and tender, and no impulse could be detected when the patient coughed. The swelling could not be transilluminated.

At operation the hernial sac was found to contain a large quantity of dark blood which had come from a ruptured vein in the sigmoid mesocolon. The 25 centimetres (ten inches) of sigmoid colon also present in the sac were normal in colour and neither distended nor collapsed. After the separation of dense adhesions between it and the wall of the sac the colon was returned to the abdomen.

The condition had been diagnosed as one of strangulated inguinal hernia, but the absence of abdominal pain and of other signs of intestinal obstruction made that unlikely. The sudden and tremendous increase in size of the hernia in the absence of obstructive features was difficult to explain.

When the symptoms were reviewed afterwards the clinical features were what might have been expected from the pathological condition. No cause could be found for the rupture of the vein. Possibly it was associated with the sudden entrance of more than the usual amount of sigmoid colon into the sac.

When one considers the tension to which such unsupported mesenteric veins must at times be subject one wonders why their rupture is so unusual.

Reviews.

TISSUE EVOLUTION.

Books and scientific papers on theories of evolution continue to surge from the printing presses and there is every likelihood of a steady stream with the constant progress in new experimental fields. A little monograph on "The Basis of Tissue Evolution", by the late Dr. Albert A. Gray (formerly lecturer on diseases of the ear at Glasgow University), is, however, a somewhat different type of publication.¹ The manuscript was left unpublished on the author's death. The theory and substance of the thesis were known to his son, who, after showing it to one or two well-qualified friends, has had the manuscript published practically as it stood, with a foreword explaining the position and supplying a few interesting facts about the life and work of the author.

The work is interesting as indicating the views of a physician who had spent his life studying the ear and its diseases, and we can well sympathize with the standpoint taken up.

The author accepts Darwin's theory of natural selection as the true explanation of evolution. He is troubled, however, by the problem of the origin of the variations which Darwin took for granted as spontaneous and accidental. And it is here that he offers his explanation. His theories are introduced by the affirmation that so far science has neglected the study of the response of living tissues to injurious agents of all kinds. He affirms that disease processes are merely one manifestation of biological processes, and that we cannot understand the behaviour of tissues when injured without having some conception of their evolution. Thus the evolution of the tissues is viewed as the key to the evolution of species. "The real problem of evolution is the differentiation of the tissues."

Unfortunately the discussion of this exceedingly important subject does not envisage the vast field and the important mass of knowledge now available. Possibly the essay was written several years ago before the modern study of experimental embryology had made much progress.

The essence of the author's theory of the origin of variations is that environmental changes cause injury to tissues or cells. The cells vary "more or less in all their characters, that is to say, no two cells are exactly alike". The change in the environment requires different qualities from those required before the change. Those cells which can best withstand the injuring agent will survive and produce offspring possessing similar qualities to themselves.

It must be confessed that at times it is very difficult to see the difference between this theory and pure Darwinism as expressed in the "Origin of Species". But the author is convinced of the action of injury and emphasizes it more than once. "Thus injury is the initial factor in developing the muscle cell, and the latter is not a spontaneous variation from the epithelial cell."

Those who are interested in the explanation of evolution will no doubt find something provocative in this essay; but we cannot suggest that it is suitable material except for those who are already well versed in the literature of the subject and who can read it in a thoroughly critical manner. Indeed, in some cases the statements made are misleading, as, for example, the suggestion on page 26 that true bone originated when fishes took to a life on land. The work is illustrated with six plates showing the labyrinth of the ear. There is no index.

¹ "The Basis of Tissue Evolution and Pathogenesis", by A. A. Gray, M.D., F.R.S.E.; 1937. Glasgow: Jackson, Son and Company. Demy 8vo, pp. 101, with illustrations. Price: 7s. 6d. net.

The Medical Journal of Australia

SATURDAY, MARCH 4, 1939.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: Initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction, are invited to seek the advice of the Editor.

SURGERY AND DIABETES.

FAMILIARITY, if it does not always breed contempt, may give rise to carelessness, and in few human occupations is lack of care more likely to be followed by disaster than in the practice of medicine. Since the discovery of insulin the risk associated with surgical operation on a diabetic patient has been greatly reduced. This is widely recognized, especially by medical practitioners who have little hesitation in advising operation for a diabetic patient, provided they are able to superintend the patient's preparation for operation and to continue his treatment afterwards. This feeling of comparative security, however, may become a danger unless the medical attendant keeps before his mind a clear conception of what diabetes is, knows exactly what insulin can do and what it cannot do, and is expert in dealing with the special diagnostic and therapeutic problems that may arise. In these circumstances a recent contribution by Henry J. John, of Cleveland, Ohio,¹ will well repay study.

The statistics given by John are both interesting and instructive. He shows that in a series of 1,767 cases reported before the discovery of insulin the mortality from surgical operation in diabetes was 20.6%; in 9,513 cases reported since 1923 the mortality was 6.7%. In a series of 1,273 cases of his own the mortality rate was 5.8%. This is much the kind of percentage that we should expect to find. That attention should be drawn to this subject is shown by the tremendous variations in the results reported; the mortality figures still range, according to John, from 1.2% to 68%. This is surely a disgrace to modern medicine and surgery. Diabetics are liable to be affected by any of the conditions for which surgical operation is usually undertaken, and the increased risk run by them in undergoing operation is due to such complications as obesity, arteriosclerosis and liability to infection, rather than to diabetes *per se*. From this it would follow that prophylactic measures in regard to these complications should be adopted. Obesity always increases the risk of surgical operation, whether it occurs in a diabetic or non-diabetic person; it can and should be controlled in every instance. The reason for the prevalence of arteriosclerosis in diabetes is not fully understood and it is difficult to take steps for its prevention. As far as one of the results of arteriosclerosis, gangrene in the limbs, is concerned, however, constant care and the avoidance of trauma should never be forgotten. Difficulties in diagnosis are likely to arise. All writers on this subject refer to the difficulty of differentiating acute appendicitis and other acute inflammatory conditions from diabetic acidosis. John points out that differentiation is by no means easy and that the responsibility of the medical attendant is very great. If a patient suffering from acidosis is submitted to operation he will in all probability not survive the shock. In John's opinion the best thing to do, if a diagnosis cannot be made, is to give intravenously five hundred cubic centimetres of a 10% solution of glucose containing twenty to forty units of insulin. If within an hour or two symptoms are not relieved, they are most likely due to an acute inflammatory condition. It is usually safe to defer operation for an hour.

¹ *Annals of Surgery*, December, 1938.

The secret of success in the surgery of diabetes lies in constant supervision of the patient, both before and after operation, by a physician skilled in the management of diabetes and in an unwillingness on the part of the surgeon to undertake operation until he is told by the physician that it is safe to do so. In other words, collaboration is necessary here, as in so many other conditions. That this may not be, as it sometimes appears, the expression of a pious hope or a platitude uttered for lack of some better suggestion, is shown by John. He writes that he has worked with thirteen surgeons. Of these, twelve accepted his judgement as to when the patient should be operated on; the mortality rate among their patients was 4.6%. One surgeon "refused to recognize the importance of these procedures and would not wait until the patient was deemed ready for operation". The mortality among his patients was 17%. If such a surgeon were to hold an appointment at a hospital managed by a board or council, he should be dismissed on the ground of incompetence. Fortunately the vast majority of surgeons realize that they should serve the sick—that they exist for hospitals and not hospitals for them or their aggrandisement. We have yet to hear of a physician who has refused to collaborate with a surgeon in a case of diabetes complicated by a surgical condition.

Current Comment.

CIGARETTE SMOKING.

THE effects of inhalation of tobacco smoke on the nervous and vascular systems are considerably favoured by investigators today as a subject for research. Probably the advice to abstain from or at least to limit smoking is given in some instances without a very sound basis of scientific reason, though information is accumulating which tends to show that smoking can be proved to have an effect upon various functions of the mammalian body. Whether these results are harmful or not may be another matter, but at least the physician, by the use of his knowledge, can fortify his position in advising, let us say, the arteriosclerotic subject under threat of a peripheral vascular accident that the inhalation of tobacco smoke actually does affect the outlying vascular fields of the body. In this

way also we may quote recent work on the effect of cigarette smoking on the heart.

Harry L. Segal has followed other workers in using the electrocardiograph for testing the effect of nicotine on various groups of people.¹ It may be asked if the question is yet settled as to whether nicotine is the harmful constituent of tobacco smoke, or at least that which is most likely to produce systemic effect. There seems little doubt that it is. Carbon monoxide and other by-products of combustion, either of the tobacco or of the paper used in cigarettes, have been blamed; but the quantities absorbed appear to be so small that although certain of the pyridine derivatives may cause local irritant effects, it is not likely that they are significant. Segal remarks that since we realize that nicotine is the harmful element in the smoking, and since many people find it extremely difficult to give up smoking, it appears logical to ask what is the least harmful way of smoking. This introduces the subject of filters. In this study two filter holders were investigated: one was a special filter containing a silica gel, and the other consisted of an ordinary cigarette slipped into the holder to act as a nicotine trap. The method used was for the subject to refrain from smoking for one night and on the following day to smoke a cigarette with or without a holder while sitting in a comfortable chair and with the electrocardiograph leads in position, so that tracings could be taken before and at various periods after he began to smoke. The subjects tested were divided into age groups, 17 to 35 years, 35 to 50 years, and 50 years upwards; in addition to these tests certain so-called denicotinized brands of tobacco were also examined. Before passing to the results we may note that Baumberger's work is quoted as demonstrating that the nicotine content of cigarette smoke is about 0.57% of the weight of the tobacco in the cigarette, and 14% to 33% of this nicotine appears in the smoke; further, that 66.7% of the smoke, and presumably the nicotine, is retained in the body when the smoke is simply puffed, while 88.2% is retained in the body when the smoke is inhaled. Maddock and Collier are also quoted as stating that a quantity of nicotine varying from 3.33 to 2.52 milligrammes will be absorbed by the body when one cigarette is smoked, according as the habit of inhaling is pursued or not. Segal found that on the whole definite changes were found in the electrocardiogram in this experiment; there was an increase in the heart rate, and a lowering of the voltage of the T wave was also noted. These effects were produced both by standard brands of tobacco and by those which are marketed as being denicotinized. The filter holders tested decreased the amount of nicotine in the smoke, but some electrocardiographic changes were still observed. It may be noted that none of the brands which incorporated a filter in the cigarette was tested; but it seems fair to assume that similar results would be obtained. All the facts noted occurred

¹ The American Journal of the Medical Sciences, December, 1938.

mainly in people under the age of fifty. Other workers have found similar changes, and even inversion of the *T* waves has been observed with minor changes in the *P-R* interval and in the voltage of the *QRS* complex. These experiments resemble those carried out on surface temperature of the limbs in relation to the changes produced by smoking. They demonstrate that smoke, presumably owing to the action of nicotine, produces changes in cardio-vascular function. The degree of harm likely to be wrought by such changes we cannot estimate, but at least our pharmacological knowledge of tobacco is growing.

Segal also reports a series of cases in which a definite degree of fatigue was complained of by smokers, a condition which was permanently relieved by the abandonment of the habit. This work is based on vaguer clinical observations. He states that the relationship of fatigue to smoking may depend in some cases upon the depletion of the glycogen reserves, since it is known that nicotine has a direct effect on the height of the blood sugar. These results seem to need more control experiments; but they open up an interesting field.

PSEUDO-TUBERCULOSIS IN MAN.

UNDER the title "Pseudo-Tuberculosis in Man", Professor I. Snapper, of Amsterdam, has published in English a monograph comprising lectures delivered to the University of London in 1937. The work is divided into two parts. In the first, Professor Snapper and Dr. A. W. M. Pompen describe the visceral localization of the sarcoids of Boeck, choosing the term Besnier-Boeck's disease. The chapter opens with the motto that "a granulation tissue or a nodule resembling the structure of the tuberculosis tubercle (as described by Virchow) is not always caused by tubercle bacilli". The incidental employment of the name "tuberculide" is deplored. Where constant search fails to reveal tubercle bacilli in association with a skin or visceral nodule, the time has arrived, states Snapper, to relinquish such an explanation and to state frankly that the aetiology of the lesion remains unknown.

Lupus pernio was first described in 1875 by Jonathon Hutchinson; but the name was introduced by Besnier fourteen years later. The lesions somewhat resemble chilblains. Reddish-blue swellings develop at the tips of the extremities, and persist for months, despite warm weather. In 1899 Boeck described nodular accumulations of similar appearance developing on any part of the skin, which he called "multiple benign sarcoids". Later Boeck realized that this affection was by no means entirely a skin disease. He described lymph gland enlargement, especially in the cubital and supraclavicular fossae, also nodules in the mucous membranes. He was convinced that the affection he had described represented a form of tuberculosis. J. Schaumann in 1914 demonstrated that the sarcoids of Boeck and

the *lupus pernio* of Besnier were histologically the same disease, the nodules consisting of accumulations of epithelioid cells and lymphocytes, with one or more giant cells. A tendency to sclerosis was plain in the older lesions, but, and this point is emphasized by Professor Snapper, caseation and calcification are invariably absent. The name Besnier-Boeck's disease was adopted by the Dermatological Congress in 1934 to include the tripartite syndrome: *lupus pernio*, sarcoids of the skin, visceral localization of sarcoids.

Each of the three components need not be present to justify a clinical diagnosis of this affection. According to Snapper, lesions of the visceral organs may occur without the appearance of skin sarcoids. Experience has shown that the lymph glands are the commonest site for visceral localization. In particular the hilar lymph glands become involved, sometimes enlarging to an extraordinary degree. Peripheral glands, when affected, are smooth and never ulcerate. Splenomegaly often occurs and has led already to many diagnostic errors. Involvement of the skeleton takes place, particularly in the phalanges of the fingers and toes. This is visible in the radiograph as cyst formation or lattice-like structure of the medulla. Clinically, swelling, discoloration and nail deformities, superficially resembling tuberculous dactylitis, are formed. The X ray appearance, Snapper warns us, must not be taken as pathognomonic of Boeck's sarcoids of the skeleton. Syphilis, leprosy, gout, even tuberculosis, may produce closely similar lesions. The course of the skeletal lesions is very slow and chronic.

Special interest attaches to the manifestations of Boeck's sarcoids in the lungs. The X ray appearances closely resemble those found in "chronic" miliary tuberculosis (*granulie froide*). Similar appearances are known in miliary spread of carcinoma, silicosis, lymphogranuloma *et cetera*. The pulmonary sarcoids have a tendency to undergo fibrotic degeneration, and in time can be completely replaced by connective tissue. One of Snapper's patients died from right-sided heart failure secondary to this pulmonary fibrosis. Enlargement of the hilar glands may be sufficient to block a bronchus and cause atelectasis. Dissemination of the sarcoids also occurs in the ocular iris and ciliary body. They are usually at first thought to be due to tuberculosis. Uveo-parotid fever, Snapper suggests, may include examples of Besnier-Boeck's disease. Fever, increased sedimentation rate and leucopenia are often present, but the skin reactions of von Pirquet and Mantoux are frequently not obtained. This finding is regarded by Snapper as of considerable diagnostic significance.

Tuberculosis and skin lesions and lesions whose appearance might suggest a tuberculous origin are much less common in Australia than in Europe. It is unlikely that patients with visceral sarcoids only outnumber those whose skin is also affected. For these reasons it is unlikely that the Australian practitioner has often failed to recognize Besnier-Boeck's disease.

Abstracts from Current Medical Literature.

PHYSIOLOGY.

Antagonism between Secretion of the Posterior Lobe of the Pituitary Gland and Acetylcholine.

H. NECHLES AND F. NEUWELT (*The American Journal of Physiology*, October, 1938) state that small doses of "Pitressin" or pituitrin injected intravenously inhibit more or less completely the vasodepressor effects of small doses of acetylcholine. This observation was made during the course of an investigation of the cause of peptic ulcer. It had been found previously in the authors' laboratory that acetylcholine produced vasoconstriction in the vessels of the human stomach and in the stomachs of laboratory animals. Since Dodds and his collaborators had produced gastritis and acute perforating ulcers in animals by the administration of extracts of the posterior lobe of the pituitary gland, it was thought that a change in the activity of esterase might follow the administration of pituitary extracts. The authors investigated the antagonism between pituitrin and acetylcholine in eleven experiments, and in each an adequate dose of pituitrin resulted in inhibition of the blood pressure response to acetylcholine. "Pitressin" inhibits salivary secretion and affects the vagus response of the heart. The authors raise the question as to whether the antagonism between acetylcholine and pituitrin represents a physiological mechanism. In their opinion the effectiveness of such small amounts of pituitrin (or "Pitressin") as are liberated by central vagal stimulation suggests such a relationship.

Ability of the Dog to Utilize Vitamin A from Plant and Animal Sources.

THERE is ample evidence to show that the rat and herbivorous animals can utilize carotene, the plant precursor of vitamin A, as efficiently as vitamin A of animal origin; but it has been suggested that possibly carnivorous animals cannot convert the vegetable precursor carotene to vitamin A. Dorothy Bradfield and Margaret Cammack Smith (*The American Journal of Physiology*, October, 1938) present evidence to show the comparative efficiency of utilization by the dog of vitamin A in cod liver oil, and of the vitamin A equivalent of its precursor carotene, fed either as pure carotene in oil or as the plant food, carrots. Twenty-seven young puppies, from four litters, ranging from five to seven weeks of age, were used in these experiments. Control animals from each litter developed symptoms of vitamin A deficiency. It was ascertained that the normal growth requirements of the young puppy were provided for and a

slight storage in the liver was permitted by the administration of twenty United States Pharmacopoeia units of vitamin A per 100 grammes of body weight. Corresponding amounts of cod liver oil or of carotene in oil or in carrots appeared to be equally well utilized as sources of vitamin A. Greater intake of vitamin A, fed as cod liver oil, resulted in a proportionately higher concentration of vitamin A in the liver of the dog. Although no weight gain advantage was afforded by the higher levels of vitamin A intake, there were evidences of a better nutritive condition in the superior lustre and heaviness of the coat.

Responses of Rats to Menopausal Urine Injections.

SINCE the discovery of gonadotropic principles in the anterior hypophysis and in the urine of pregnancy, the normal immature female rat and mouse have been almost exclusively employed in assays of gonad-stimulating substances from all sources. H. H. Tyndale, Louis Levin and P. E. Smith (*The American Journal of Physiology*, October, 1938) have made a comparison of the responses of the normal and the hypophysectomized rat to injections of menopausal urine extracts. A large group of normal rats was also injected with extracts of urine of pregnancy. The authors state that their results show the difficulty of using the ovaries of normal immature rats for the assay of follicle-stimulating substances. A total of 371 rats was used. Of these, 164 normal animals were injected with menopausal urine extract, 130 normals with pregnancy urine extract, and 77 after being subjected to hypophysectomy were injected with menopausal urine to compare the uniformity of response between strains. Rats after hypophysectomy, as compared with normal rats, showed a considerable difference in ovarian response to menopausal urine extract injections when given the same doses of the same preparation for the same period of time. There was a wide dose range in which corpora lutea appeared in some but not in all of the ovaries of the normal rats. Within this dosage range corpora lutea were not formed in rats which had undergone hypophysectomy. With extremely high doses, luteinization took place also in rats after hypophysectomy, so that it is evident that the pituitary gland played an important role in the luteinization of the ovary in the normal immature rat treated with the urine of pregnancy. In the rats which had undergone hypophysectomy the occurrence and degree of luteinization was consistent with the dose of pregnancy urine; but in normal immature rats there was an enormous degree of individual variation in luteinization and in ovarian weight response. The difference between urine of pregnancy and urine of the menopause, which is brought out sharply by the use of the animal

which has undergone hypophysectomy, is somewhat obscured in the normal immature rat through the function of the pituitary gland of the test animals. Whether the secretory output of the anterior pituitary gland in immature animals is constant or subject to cyclic variations as in the adult is unknown; but the authors observe that it has been suggested repeatedly that the animal's own pituitary gland might be the cause of a variable error in assay work. They also state that quantitative assays of the relative amounts of follicle stimulating and luteinizing hormone in urine extracts is of questionable value, even when rats which have undergone hypophysectomy are used.

Electrophoretic Mobility of Human Erythrocytes.

W. H. BYLER AND H. M. ROZENDAAL (*The Journal of General Physiology*, September, 1938) present the results of some preliminary experiments involving comparison of the electrophoretic mobility of the ghosts (stromata) of human erythrocytes with whole cells, and of the fragments of cells with whole cells and ghosts. The electrophoretic mobility of human red cell ghosts decreases in the presence of chicken serum. The decrease is not directly due to the presence of absorbed material, but to a change which is catalysed by the foreign substance. The authors suggest that abnormal serum materials resulting from disease may serve as catalysts, and that the slow change of whole cells, the change of ghosts in the presence of foreign serum, and the change of fragments are all manifestations of the same modification of structure or composition of the cell surface. They are also of the opinion that their work may provide a new approach to the study of the composition and structure of the red cell wall, and a possible new method for clinical study of blood in disease.

BIOLOGICAL CHEMISTRY.

Vitamin C in Pregnancy and Lactation.

H. M. TEEL, B. S. BURKE AND R. DRAPER (*American Journal of Diseases of Children*, November, 1938) have demonstrated a correlation between the vitamin C content of the diet and the blood plasma in pregnant women. With a relatively constant vitamin C intake, the concentration in the maternal plasma decreased considerably as pregnancy advanced. This was true whether the dietary intake of vitamin C was optimal, suboptimal or deficient, and indicated that the maternal need for vitamin C was considerably increased during pregnancy. The diets of the women studied were in most cases inadequate to meet this increased need. The level of ascorbic acid in the cord blood of infants at

birth was always much higher than that in the maternal blood taken at the time of delivery. The greatest differences were found when the values for maternal blood were lowest. In three patients with *hyperemesis gravidarum* the ascorbic acid in the plasma was within the range found in cases of clinical scurvy.

T. H. INGALTO, R. DRAPER AND H. M. TEEL (*ibidem*) found that fresh breast milk from mothers on the usual diet of a maternity ward contained on an average 4.5 milligrammes of ascorbic acid per 100 cubic centimetres during the first two weeks of lactation. The breast-fed babies of such mothers received on an average 28 milligrammes of ascorbic acid daily. The data showed that the breast-fed infant could obtain adequate vitamin C nutrition at the expense of the mother, even if her diet was relatively deficient, as indicated by a low concentration in her blood plasma. Pasteurized human milk was found to be grossly deficient in vitamin C.

Arsenic in Nutrition of the Rat.

IN view of the general indecision as to whether the arsenic present in normal animal tissues is merely an accidental and potentially dangerous contaminant or a naturally occurring component of living tissues, E. Hove, C. A. Elvehjem and E. B. Hart (*American Journal of Physiology*, October, 1938) have investigated the possible essential role of arsenic in nutrition. Experimental evidence showed that if arsenic is essential for the growth of rats during the rapid growth period, or for the building of haemoglobin or red blood cells, two microgrammes per day satisfied this requirement for the rat. Arsenic caused a slight initial delay in the rate of fall of haemoglobin in rats changed from a mineralized whole milk diet to whole milk without minerals. It had no effect on the rate of regeneration of haemoglobin or red blood cells in anemic rats when given with iron or with iron and copper. About 80% of the arsenic in the blood of normal rats was concentrated in the red blood cells.

Diets of Pregnant Women.

R. A. McCANCE, E. M. WIDDOWSON AND C. M. VERDON-ROE (*Journal of Hygiene*, September, 1938) examined the diets of 120 pregnant women at different economic levels. The individual method was used and the detailed dietary of one week was studied. The intake of Calories was found to be little affected by income, and this was true also of fat and carbohydrate. The intakes of protein, animal protein, calcium, phosphorus, iron and vitamin B₁ rose convincingly with income. These differences were due to the fact that a rise in spending power led to an increased consumption of milk, fruit, vegetables and meat, and to a decreased consumption of bread and total cereals. In general,

the women taking the better diets were taller and less anæmic than those taking the poorer diets. A comparison of the diets of well-to-do women with the requirements suggested by the League of Nations and other authorities suggests that the requirements for Calories have been set too high. In the diets examined, the intake of calcium was suboptimal throughout, and the diets of the poorer women were deficient in many respects. From a survey of the evidence available the authors suggest that the daily intakes during pregnancy should probably be of the following order: Calories, 2,500; protein, 90 grammes; calcium, 1.5 grammes; phosphorus, 2 grammes; iron, 20 milligrammes.

Insulin and Zinc Content of the Pancreas.

D. A. SCOTT AND A. M. FISHER (*Journal of Clinical Investigation*, November, 1938) have estimated the content of insulin and zinc in the pancreas of normal and diabetic individuals. Pancreatic glands were obtained at autopsy from fourteen normal persons who had met almost instantaneous death resulting from accidents and other causes, while another series of eighteen glands was obtained at autopsy of individuals who had had a history of *diabetes mellitus* and who had been receiving insulin daily. In these patients diabetes had been a contributing rather than a primary cause of death. In the pancreas of diabetics the total amount of insulin present amounted on an average to only one-quarter that found in normal individuals. Similarly, the amount of zinc contained in the diabetic pancreas was only one-half that in the normal gland. There was no great difference in the zinc concentration in livers of diabetics and of normal persons.

Carbohydrate Tolerance after Protamine Insulin.

HENRY T. RICKETTS (*Journal of Clinical Investigation*, November, 1938) has studied carbohydrate tolerance in controlled tests with diabetic patients and dogs from which the pancreas had been removed. This work confirmed the clinical experience that in severe diabetes a daily dose of protamine insulin which would render the blood sugar normal before breakfast or during the night, would often fail to prevent hyperglycæmia after meals. Under similar conditions the blood sugar curves of mild diabetes approached the normal. It was held that these facts did not support the contention that the liver operates to reduce hyperglycæmia without the aid of extra insulin, but did offer new evidence in favour of certain older theories, namely, that normally the ingestion of carbohydrate stimulates the secretion of insulin by the pancreas; that the pancreas in severe diabetes responds poorly to such a stimulus; that the pancreas

of mild diabetes retains enough of its incretory function to react, when so stimulated, by secreting an additional, though still not optimum, amount of insulin; and that the blood sugar curve of the normal individual may be regarded as the result of a completely adequate pancreatic response.

Anæmia Studies with Dogs.

By using dogs for their investigations, V. R. Potter, C. A. Elvehjem and E. B. Hart (*Journal of Biological Chemistry*, November, 1938) have commenced experiments to rationalize, if possible, the results obtained by studies on nutritional anæmia in rats with those obtained from studies on hæmorrhagic anæmia in dogs produced by the technique of Whipple and co-workers. Growing dogs were placed on milk diets with rigid exclusion of iron and copper. After anæmia had developed, iron and copper supplements were fed, and hæmoglobin regeneration occurred. When hæmoglobin levels returned to normal some dogs were again made anæmic by bleeding, and these dogs responded poorly to administration of iron, but hæmoglobin regeneration proceeded rapidly when iron and copper were given. It was concluded that the canine species should be included among those which require copper for hæmoglobin regeneration, and that the need for copper for hæmoglobin synthesis is probably a general biological property. From a study of the blood copper levels during anæmia and accelerated hæmatopoiesis it was considered that an increase in blood copper will occur whenever copper reserves are available and are needed.

Regulation of Blood Sugar by the Liver.

S. SOSKIN, H. E. ESSEX, J. F. HERRICK AND F. C. MANN (*American Journal of Physiology*, November, 1938) measured by means of the thermistor-muhr, in specially prepared dogs, the rate of blood flow through the liver, and the arterial and venous components of the total hepatic blood flow. The output or intake of sugar by the intact liver *in situ* was calculated in milligrammes per minute by correlation of the rates of blood flow with the simultaneously determined content of blood sugar of the inflowing and outflowing blood. The movement of sugar out of or into the liver was observed during control periods and after intravenous administration of sugar. During control periods the liver was observed to secrete sugar into the blood. The administration of glucose was invariably followed by cessation of excretion of sugar and retention of portion of the incoming sugar. The results obtained yielded direct and quantitative evidence of the homeostatic regulation of the level of blood sugar by the liver, a mechanism for which only indirect evidence was previously available.

British Medical Association News.

SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held at the Robert H. Todd Assembly Hall, 135, Macquarie Street, Sydney, on December 22, 1938, Dr. B. T. Eby, the President, in the chair.

Perforating Injuries of Joints.

Dr. H. R. G. POATE read a paper entitled "Perforating Injuries of Joints" (see page 339).

Dr. H. A. SWEETAPPLE read a paper entitled "The Treatment of Some Late Results of Perforating Injuries of Joints" (see page 342).

Dr. W. VICKERS said that the speakers had covered the subject very completely. It was fortunate that there were still people who had had the experience of the Great War and of the transition from radical procedures to more conservative ones that gave much better results. There were still people who were terrified at the sight of a swollen joint that had been injured; they instituted severe antiseptics, and ultimately got loss of the limb or the patient's life. If Dr. Poate's precepts were carried out a good joint would result; and a good joint meant a usefully functioning limb. The method suggested was one of waiting, of leaving Nature alone to work for herself, or finding out what organism was present; for if the infecting organism was a streptococcus a useful limb could be expected. Dr. Sweetapple had given a few tests that should be tried before manipulation was resorted to. Dr. Vickers uttered a protest against the passive movements so frequently used. He said that they only postponed the time of recovery and precipitated an ankylosing condition. Dr. Vickers referred to the treatment of an injured thumb, spoken of by Dr. Sweetapple. He said that he was in entire agreement with Dr. Sweetapple about the futility of hot fomentations *et cetera*, persisted in over a long period. The patient suffered great pain, and bathed and bathed his injured thumb until at last someone gave in and amputated it. The damaged area of the joint should be excised, as the joint was destroyed. The resultant stiff thumb was a very useful member.

Dr. J. C. STOREY thanked Dr. Poate for his lucid account of the treatment of perforating injuries to joints. He said that one of the most difficult problems in this type of surgery was to decide whether conservative or radical measures should be employed. He was sure that Dr. Poate appreciated the importance of assessing as well as possible the reaction of the patient to whatever infection he was fighting. This was a guide as to whether the attendant surgeon should be radical or conservative. Dr. Storey's only criticism of Dr. Poate's paper was with regard to his rather confident mention of the use of streptococcal antiserum. Dr. Storey had not yet found it of the slightest use, although he was prepared to admit that it might be. Another point of importance was Dr. Poate's reference to the need for putting a thick rubber drain down to the capsule; it should be stressed that a thick drainage tube should never be thrust into a joint in any circumstances. If this was done the joint was ruined. There might be a wound into the capsule; there might be, one did not know. Such a wound was best drained in the way Dr. Poate had described. The joint should be placed at absolute rest at once, and treatment should proceed as if it was known that the joint cavity was involved; the joint should be immobilized. Dr. Sweetapple had mentioned movement of the joint. Dr. Storey said that passive movement did not seem to be half so good as active movement; often it could do harm. The surgeon was required to know when a joint that was the seat of septic arthritis should be moved. The great thing was not to allow it to get into awkward positions. Often those who dealt with these injuries had not this nice judgement to know when a limb should be moved. He was always

fearful of moving a joint that had been infected, unless a good deal of time had passed.

Dr. A. R. HAMILTON, in expressing appreciation of the papers, said that both speakers had been so very "Thomas" and so very "Liverpool" that there was little left for him to speak about. Dr. Poate had not stressed the need for early cleansing and *débridement* of these wounds. Dr. Hamilton thought that six hours after the injury was the limit within which good results could be obtained. If cleansing was delayed longer, the possibility of early union and a good joint was diminished. The question of a non-irritant solution for washing out the joint was very important. He thought that ether and hydrogen peroxide were the best for lavage. Dr. Hamilton disagreed with one point in Dr. Sweetapple's paper, and that was his contention that the use of an aluminium or plaster splint afforded complete fixation of the joint. The Thomas splint, in his opinion, was the only one that afforded complete fixation; others afforded only comparative fixation.

Dr. RUTHERFORD DARLING, in congratulating the speakers, said that he had been impressed most by the way Dr. Poate had condensed the information contained in his paper. He hoped that the fourteen points enumerated in it would work out better than the fourteen points given by a very distinguished gentleman some twenty years earlier. Dr. Storey had spoken of thick drainage tubes; a warning should be given against their use. They were still being used in New South Wales. As Dr. Storey had said, the use of a thick drainage tube almost always led to permanent damage to the joint. Many years earlier a series of cases had been reported in which thick drainage tubes, used for abdominal drainage, had apparently caused aneurysms.

Dr. G. KEITH SMITH said that he had much pleasure in congratulating both speakers. Some time ago he had written a paper on joint infections that included those infections arising in the neighbourhood of joints. He agreed with all that Dr. Poate and Dr. Sweetapple had said, particularly with regard to immobilization. Dr. Poate had shown fine judgement for a general surgeon when he stressed the importance of prevention of deformity. In many cases, when sepsis was present, deformity took place with remarkable suddenness. Often the patient was so ill that the medical attendant hesitated to do anything to prevent deformity. In the case of children, who had remarkable recuperative powers, many who had appeared to be going to die recovered, leaving appalling deformities to be dealt with. Early attention to this aspect of the situation was not the least important consideration.

Dr. LAURENCE MACDONALD considered that Dr. Poate had not sufficiently stressed the excellent results to be anticipated from early treatment by conservative methods. H. O. Clarke, of Manchester, had investigated the late results in a series of cases of acute suppurative arthritis of the knee joint and had found that 50% of patients had a normal range of movement, and almost 80% had useful function in the joint.

There was one point on which Dr. Macdonald desired further information; he had not heard what form of drainage was carried out in cases in which obvious pus was present. In his experience anterior arthrotomy, saline irrigation of the joint, and closure of the short skin wound with a thin strip of corrugated rubber down to the unsutured capsule had much to recommend it. In cases treated by aspiration or limited arthrotomy it was often possible to allow ambulation at the end of a fortnight. Immobilization for a period of six to eight weeks did not appear to interfere with subsequent restoration of movement.

Dr. Sweetapple had referred to knee joint infections leading to ankylosis in a position of flexion. Many of these occurred in children, and shortening resulted from epiphyseal damage. Correction by wedge osteotomy caused further shortening. Maximum length was maintained by a curved osteotomy with "filleting" of the posterior aspect of the head of the tibia. No attempt was made to obtain full extension immediately, but the limb was gradually

straightened on a Thomas splint over a period of some weeks.

Dr. Macdonald also referred to the necessity for tenotomy of the adductors and flexors in osteotomy to correct deformity at the hip joint. Failure to do this was a frequent cause of upward subluxation of the divided shaft.

In conclusion Dr. Macdonald asked Dr. Poate whether he advocated immediate removal of the patella in a compound fracture with severe comminution of the bone.

Dr. Poate, in reply, thanked those who had contributed to the discussion. Dr. Storey and Dr. Darling had referred to the question of the insertion of drainage tubes in joints. Dr. Poate had had it so firmly fixed in his own mind that no one would do such a thing in these days that he had not thought it necessary to mention it. Dr. Darling had said that he knew of cases in which this procedure was carried out by some men. Dr. Poate said that as soon as a tube was put into a joint the joint was lost. If pus was in the joint, the thing to do was to make provision for free drainage, to leave the wounds wide open, but not to put tubes into the joint. Later, secondary suture would be possible in many cases. Manipulation of the joint could be done when the inflammatory reaction had subsided. It was good practice to immobilize the joint in plaster and allow the patient to move about.

Dr. Macdonald had referred to compound fractures of the patella. Dr. Poate said that the only proper method of treatment was excision; the results were remarkably good. Dr. Hamilton had remarked on the fact that both speakers were Liverpool-minded; Dr. Poate said that it had come about in his case in the following way. In 1917 General Howes had seen that after the War much would have to be done in order to help men to take part once more in civil strife. He had therefore selected one man from each State, to be trained at Hammersmith, under Robert Jones. Dr. Poate had been chosen from New South Wales. He had also had a relative there managing the Cardiff workshops. He had therefore a personal introduction to Robert Jones and had been very impressed with the wonderful work done by Jones and the excellent team he had on his staff. At the end of 1917, when he returned to Sydney, Dr. Poate had immediately put in a report to the Director-General of Medical Services with regard to the rehabilitation of the crippled. In spite of the fact that General Howes had had these medical men specially trained, it was learned early in 1918 that the Director-General of Medical Services was to proceed overseas to study the same subject. Dr. Poate had written to the Press on the matter and had nearly lost the number of his mess. However, his reports and those of others had been pigeon-holed. It was difficult in those times to get things going.

Dr. Poate referred then to a point brought up by Dr. Sweetapple: the persistent use of hot-water baths on infected joints. Dr. Poate said that the habit might be referred to as "the curse of the hot bath". It was carried on day after day and week after week, and postponed surgical intervention, which would aim at ankylosis certainly, but ankylosis in a good position, and would save the patient many weeks of pain and suffering.

Dr. Sweetapple, in reply, said that he had very little to add. Dr. Storey had mentioned the judgement required to determine when a joint should be moved, and had spoken a wise word of warning against indiscriminate passive movements. Dr. Sweetapple was in agreement with Dr. Storey; but Dr. Storey's remarks on that subject had given him a chance to stress the value of Thomas's test of recovery. It was applicable not only to injured and diseased joints, but also to fractures. Radiographic evidence of union was always weeks behind clinical evidence of union. When the patient felt that he was better, there was no harm in applying the test. It did him no harm to use his limb under observation, for return of pain and tenderness at the fracture site gave ample warning of insecurity before malalignment occurred. With regard to Dr. Hamilton's comment on his statement that an aluminium splint afforded complete fixation, Dr. Sweetapple said that he was willing to delete the word "complete". Dr. Macdonald had mentioned tenotomy of the adductors

and flexors for the prevention of lamentable deformity after suppurative arthritis of the hip, and Dr. Sweetapple agreed that this procedure helped to prevent inward displacement of the femoral shaft after a transtrochanteric osteotomy.

Dr. B. T. EBYE, from the chair, thanked the two speakers and those who had taken part in the discussion. He expressed regret at the small attendance, but pointed out that anything that had been said that night would be reported in *THE MEDICAL JOURNAL OF AUSTRALIA*, and not lost. The subject had been brought up to date, and in a manner most useful to the busy practitioner.

A MEETING of the New South Wales Branch of the British Medical Association was held at Sydney Hospital on September 22, 1938. The meeting took the form of a series of demonstrations by members of the honorary staff of the hospital.

Tumour of the Cauda Equina or Spinal Arachnoiditis.

DR. G. C. WILLOOCKS showed a male patient, aged sixty-one years, a surgical instrument maker, who had been admitted to hospital on June 30, 1938. At the time of admission he had suffered from dysuria for twelve weeks, severe pain and swelling of both ankles and feet for ten weeks, attacks of numbness in the feet for four weeks, and coldness and pain in the fingers for one week. In the act of micturition the patient would commence with a normal stream; but this was followed immediately by complete stoppage. After some seconds the stream would recommence to flow. The patient had to pass urine many times by day and four times during the night. The urinary symptoms had appeared rapidly and had not progressed much up to the time of the patient's admission to hospital. Three months prior to admission the patient experienced a feeling of "pins and needles" in his feet. These feelings became more pronounced until at the time of his admission they were attacks of knife-like stabs—intermittent pains lasting one hour and coming on three to four times a day. One month prior to admission the patient noticed numbness and loss of feeling along the outside of the right foot. On admission this was all over the feet and up the outside of the leg to the knee; it was more marked on the right side, as all his troubles had been. One week prior to admission the fingers became blue and cold, and rather painful. The patient had experienced this before and did not attach much importance to it.

The patient had no symptoms of importance relating to disturbance of systems other than the nervous system. There were no environmental influences or habits that might have a bearing on the case.

Anæsthesia was complete over the anterior and lateral compartments of the lower two-thirds of each leg, also on the dorsum and lateral aspect of each foot. The calves were tender. Foot-drop was complete on the right and incomplete on the left side. The patient could not recognize the position of the right great toe. The knee jerks were present and equal, and the ankle jerks were both present. The plantar reflex was absent, and the response to the test of the abdominal reflex was indefinite. The biceps and supinator jerks were present and equal. No other nervous signs were detected. No abnormality of the prostate gland was detected by rectal examination. There was slight œdema of both feet; otherwise no relevant abnormality was detected in the examination of the cardio-vascular system. No abnormality was detected in the respiratory system. The urine contained pus.

There was no reaction to the Wassermann test or the Kahn test. The leucocytes numbered 13,320 per cubic millimetre. The red cell count was normal, and there was no polychromasia or punctate basophilia.

X ray examination revealed no metastases in pelvis or spine, but some degree of spondylitis. Examination of the cerebro-spinal fluid revealed no abnormality; but culture was not attempted.

He was examined by a urologist, who reported that cystitis was present, but that the prostate was normal.

He was treated along general lines and given injections of vitamin B, and he made slow but definite progress, as evidenced by diminution in the extent of the anæsthetic areas; some return of movement of the feet, especially the left foot, which had regained almost full movement; absence of tingling, numbness and blueness of the hands since his admission to hospital; abatement of bladder symptoms. He still had slight pyuria.

On September 19, 1938, examination of the central nervous system showed that the higher functions were intact; the knee jerks were exaggerated and equal; the plantar reflexes were present, and the ankle jerks could be elicited. Lipiodol injection by cisternal puncture elicited no localizing signs.

Dr. Willcocks said that the signs were of involvement of the roots of the fourth and fifth lumbar and first sacral spinal nerves. Although there was some degree of collapse of the twelfth thoracic vertebra, the symptoms were unlikely to be caused by that condition. Spinal arachnoiditis was a somewhat improbable diagnosis. Extramedullary neoplasm was the most likely condition. The sensory symptoms had improved since vitamin B had been injected, in doses of 1,000 units every second day; but the motor signs were little changed. Exploratory laminectomy over the eleventh and twelfth thoracic segments was indicated.

Pulmonary Tuberculosis Treated by Artificial Pneumothorax.

Dr. E. H. Stokes showed a boy, aged nineteen years, suffering from pulmonary tuberculosis affecting the middle lobe of the right lung. Artificial pneumothorax had been induced in August, 1936, and had been maintained for two years. He had made good progress and his general condition was excellent. The lung had been allowed to expand. No tubercle bacilli were found in his sputum and the red blood cell sedimentation rate, estimated by Westergren's method, had fallen by eight millimetres an hour.

Dr. Stokes said that the patient had been shown at a meeting of the British Medical Association held at Sydney Hospital in October, 1937.

Sciatica Treated with Vitamin B Injections.

Dr. Stokes's second patient was a man, aged forty-four years, who had suffered from pain radiating from the sacral region down the course of the left sciatic nerve over a period of eighteen months. X ray examination had shown slight sclerosis of the sacro-iliac joints. The blood serum did not react to the Wassermann test and the complement deviation reaction (gonococcal antigen) was absent. He had shown improvement after receiving ten injections each of two cubic centimetres of vitamin B₁.

Sulphæmoglobinæmia.

Dr. Stokes's third patient was a woman, aged thirty-four years, who had been suffering from vertical headaches, fainting turns, insomnia and anorexia during the previous two months. On examination it was seen that her facies and neck were blue. The systolic blood pressure reading was 156 and the diastolic 100 millimetres of mercury. On inquiry it was found that she had been taking large quantities of phenacetine. Spectroscopic examination of the blood showed the characteristic spectrum of sulphæmoglobinæmia. She was warned not to take any more powders containing phenacetine, and in about fourteen days the bluish colour of the face and neck had disappeared. Further investigation showed that her blood serum reacted to the Wassermann test, and examination of the blood showed an iron deficiency, the hæmoglobin value being 8.4 grammes per 100 cubic centimetres.

Hepatomegaly and Splenomegaly; Probably Syphilitic.

Dr. Stokes's fourth patient was a man, aged twenty-nine years, who had suffered from abdominal pain during the previous eleven years. During 1935 it had been suspected that he was suffering from a duodenal ulcer. At that time he had lost 18.9 kilograms (three stone) in weight

in five weeks. X ray examination after a barium meal had shown irregularity of the pyloro-duodenal segment, due to prepyloric or post-pyloric ulcer with pylorospasm. On November 18, 1937, it was noticed that both his liver and spleen were enlarged. A full blood count was carried out. The red blood cells numbered 4,750,000 per cubic millimetre; the hæmoglobin value was 9.6 grammes per 100 cubic centimetres (68%); the colour index was 0.7. The leucocytes numbered 8,840 per cubic millimetre, neutrophils being in the proportion of 62%; eosinophilic cells, 1%; lymphocytes, 31%; monocytes, 6%. The red cells varied slightly in size and shape. The white cells were mature.

The patient's blood serum reacted to the Wassermann test. He had been treated by means of mercury and potassium iodide, and his condition had shown very little change during the previous ten months. It was proposed to administer more vigorous antisyphilitic treatment.

Gonococcal Arthritis.

Dr. Stokes next showed a man, aged thirty years, who had suffered from acute gonorrhœa about twelve months previously. The movements of his right shoulder were limited. Wasting of the periarticular muscles was seen. An X ray examination revealed definite irregularity of the joint surfaces of the right shoulder. The complement deviation test (gonococcal antigen) did not give any reaction. "Proseptasine" had been administered by mouth for a fortnight prior to the meeting; but no alteration had been noted in the condition of the right shoulder joint.

Dr. Stokes also showed a man, aged twenty-two years, who had suffered from a recent attack of gonorrhœa and iritis. Both ankles were swollen and tender on movement. The swelling was periarticular in distribution. X ray examination of the ankle revealed no bony abnormality. The complement deviation test (gonococcal antigen) gave an incomplete positive reaction. He had been treated by means of short-wave therapy and had received 5.4 grammes (90 grains) of "Proseptasine" daily during the last week of August, 1938. His ankles had improved considerably with treatment.

Albers-Schönberg's Disease.

Dr. Stokes's next patient was a man, aged twenty-nine years, who was suffering from Albers-Schönberg's disease. He complained of generalized bodily aches and was unable to stand in the erect posture for long, as it caused him pain in his back and legs. The symptoms had been present for four years. On examination it was seen that his jaws were prominent. Bosses were present about the middle of the horizontal rami. An X ray examination showed increased density of the lumbar part of the spine, the pelvis and the femora. The mandible was also affected. Radiological appearances were suggestive of marble-bone disease. A blood count revealed a slight degree of anæmia.

Paget's Disease with Neurological Complications.

Dr. Stokes's last patient had been under the care of Dr. B. T. Shallard, who showed the patient, a man, aged fifty-nine years. The onset of the illness had occurred twelve years previously, when he had experienced pain in the region of his right hip. This had been followed by bowing of his right femur. Four years later he had noticed an increase in the size of his head. In spite of his disabilities he had been able to ride a bicycle until 1937. In July, 1938, he had noticed numbness of his right hand and forearm, and a month later weakness of the hand occurred.

The patient presented the typical appearance of Paget's disease, the head being very large, and bowing of the long bones, especially the right femur and left humerus, was prominent. Wasting of the thenar and hypothenar eminences and interossei of the right hand, with loss of power, had occurred. The left hypothenar eminence and *adductor pollicis* were also wasted. Sensation in both hands, especially the right, was impaired. X ray examination showed involvement of the cervical region by the disease process.

Angiomatous Malformation of Vessels of the Right Cerebral Hemisphere.

DR. K. B. NOAD showed a man, aged thirty-seven years, who had worked as a tailor's presser till twenty-one years of age. He used to suffer from attacks of a feeling of pins and needles in the left hand, arm and shoulder, and also attacks of severe pain behind the right eye. Sometimes they would remain for twenty-four hours. One night, following a very severe attack of pain behind the right eye, he found that he was unable to move the left arm or leg. The pain in the head was agonizing. Paralysis of the left side had remained unchanged, and the patient was still liable to severe attacks of pain behind the right eye, which protruded during an attack. The face became swollen and purplish during an attack of pain. In April, 1938, he had a "bursting" headache, and he was found to have neck rigidity; Kernig's sign was elicited. Pure blood was removed at lumbar puncture.

The patient's face was purplish. The blood vessels were dilated, especially on the right side of the face. The right temporal artery was enlarged. There was a nevus, four centimetres by one centimetre, over the nasion. The right eye was prominent, and a loud bruit could be heard on auscultation over the eye. A mass of pulsating vessels, resembling a cirroid aneurysm, could be felt over the bregma. The pupils were equal, regular, central, and reacted to light and accommodation. The ocular movements were full and equal. There was no nystagmus. Slight weakness of movement of the left side of the face, tongue and palate was observable. Hearing was normal. There was no anaesthesia of the face. The patient had left homonymous hemianopia. The left upper extremity was affected with diffuse atrophy. The grip of the left hand was poor. The left triceps and deltoid were weak. The tone was increased on the left side, and the reflexes on the left side were grossly exaggerated. The left side appeared to be hyperalgesic. The abdominal reflexes were present, being brisker on the right side. The temperature of the left leg was lower than that of the right. The left leg was wasted and its movements were weak. The patellar and ankle reflexes were brisker on the left side. The plantar reflex was extensor on the left and normal on the right side.

Tabes Dorsalis with Extensive Bulbar Involvement.

Dr. Noad's next patient was a man, aged forty-one years, who had suffered for eighteen months from a choking cough, worse at night. He coughed till he was exhausted. His voice had become hoarse and he had difficulty in swallowing, food regurgitating through the nose. The right shoulder was sore and its muscles were wasted. He suffered from shooting pains into the right heel. He had had pneumonia several times, and had suffered from gonorrhoea during the Great War.

He had a plethoric appearance. Horner's syndrome was detected on the right side. The pupils were slightly irregular and the left was larger than the right. The left was more sluggish to light; both reacted well to accommodation. The right side of the palate and the right vocal cord were paralysed. The knee jerks and ankle jerks were absent. There was analgesia of the right side of the forehead, nose and chin, of both pectoral regions, the inner side of the right forearm, the "saddle" area and the inner sides of both legs. There was hyperaesthesia of the back. Abadee's sign was present, and pain sensibility in the feet was delayed. The reaction of the serum to the Wassermann test was "incomplete positive", and of the cerebro-spinal fluid "complete positive". The cerebro-spinal fluid was blood-stained. No abnormality was revealed by X ray examination of the thorax or by bronchoscopic examination.

Osteomyelitis of the Skull.

DR. GEORGE BELL showed a man, aged fifty years, a painter, who had been admitted to hospital on February 18, 1938, complaining that he had had a lump on the head and a pain in the left side of the face for three months. He stated also that his speech had become weak, that he

was sleepy, and that his eyelids, especially on the left side, were swollen in the morning. The pain, which had been persistent in its intensity, was across the forehead, on the left side of the face, and down the back of the neck. The patient had sought dental attention, but had been informed that his teeth were sound. He had sought medical advice and had been told that he had "kidney trouble". He had nocturnal frequency of micturition. His appetite was moderately good. He suffered from constipation. He had lost a good deal of weight.

Examination revealed a fluctuant swelling of the right temporal region, 7.5 by 1.25 centimetres (three inches by half an inch) in area. The patient's nutrition was poor. Beyond slight deafness in the left ear, no abnormality of the central nervous system was detected. Scattered inspiratory râles could be heard on examination of the thorax. Infiltration analgesia with "Novocain" was induced and the swelling was incised and pus allowed to escape. X ray examination revealed osteomyelitis of the frontal and parietal bones. Culture revealed *Staphylococcus aureus*. The patient remained under treatment for the succeeding four months, during which incision of abscesses was performed on a number of occasions. He was discharged, free of symptoms, on June 25, 1938.

Exophthalmic Goitre.

Dr. Bell's next patient was a married woman, aged fifty-three years, who had been admitted to hospital first on September 5, 1936. She had had prominent eyes for fifteen years. She had lost weight, her "nerves were very bad", and she was shaky and suffered from insomnia. She had had bouts of diarrhoea and vomiting. She sweated a good deal, and she suffered from breathlessness and palpitation on slight exertion.

Twelve years previously she had had an "inward goitre" and the symptoms had persisted for two and a half years. Her eyes at that time had been so prominent that her eyelids did not close over them when she was asleep. After this she had remained "well" for seven and a half years, and then her house had been flooded, and after that fright she had become ill again. One year before her admission to hospital the goitre had become evident after she had taken iodine. She had been taking sodium iodide in a mixture, in a dose of 0.5 gramme (seven and a half grains) recently. On August 19, 1936, her pulse rate was 144 a minute, and the cardiac rhythm was irregular at times.

At the time of her admission to hospital the thyreoid gland was firm in consistence and uniformly enlarged. All the eye signs of exophthalmic goitre were present. The pulse rate was 100 per minute and the pulse was regular in time and amplitude. A systolic murmur could be heard at all cardiac areas. The basal metabolic rate was + 29%.

She was given bromide and phenobarbitone in a mixture, and, later, sulphonal. She settled down well; the temperature was normal and the pulse rate remained between 90 and 100 per minute. On September 15, 1936, she was given Lugol's iodine solution, in a dose of 0.6 cubic centimetre (ten minims), three times a day. Partial thyroidectomy was performed under narco-local anaesthesia on September 29, 1936. On the day of operation she received 2.0 cubic centimetres (thirty minims) of Lugol's iodine solution at 9 a.m., and 0.015 gramme (a quarter of a grain) of morphine at midday. Immediately after operation she received a hypodermic injection of 0.0075 gramme (one-eighth of a grain) of morphine and an intravenous injection of 1.5 cubic centimetres of "Coramine" before leaving the theatre. On regaining consciousness she was given 4.0 cubic centimetres (one drachm) of Lugol's iodine solution and 120 cubic centimetres (four ounces) of glucose in saline solution *per rectum*. Orange juice and glucose were given freely by mouth. The day after operation the patient's temperature rose to 38.8° C. (101° F.) in the evening, and the pulse rate rose to 120, and at 11 p.m. auricular fibrillation occurred. At 6 a.m. the next day the patient was given 0.75 gramme of "Digoxin", and at 9 a.m. the pulse was regular. The eyes became more prominent and the con-

junctivæ œdematous. On October 4, 1936, on the advice of the honorary ophthalmologist, the lids were sutured together with fine silk. At this stage the patient was treated with sedatives and Lugol's solution, the pulse rate and temperature gradually settling down; but she became confused and noisy.

The sutures were removed from the eyelids on October 20, 1936. The patient was sitting up in a chair, but had phases of depression and excitement, during which she screamed aloud. A diagnosis of acute confusional psychosis was made by the honorary psychiatrist, who considered that she should be allowed to go home. The patient was discharged on November 5, 1936. Her daughter was instructed in the care of the eyes.

On December 23, 1937, the patient wrote to Dr. Bell, stating that she had quite recovered and felt well. She had reported to the hospital in September, 1938, feeling and looking very well.

Plastic Surgery.

DR. ARCHIE ASPINALL showed a female patient, aged thirty-six years, who, at the age of fifteen years, had dived in front of a fire. Her hair had caught alight and had all been burnt off; her face and right hand had been severely burned. Contractures of the facial scar tissue had caused severe deformity of the nose, ectropion of both lower eyelids, and eversion of both lips. Contracture on the palmar aspect of the right fingers had caused flexion at the interphalangeal joints. She had been admitted to Sydney Hospital on July 27, 1938.

On August 1, 1938, under local analgesia with 1.5% "Novocain" solution, the left angle of the mouth and surrounding scar tissue were undermined and freed from the deeper tissues. On August 11, 1938, under intratracheal ether anaesthesia, the scar tissue was further undermined and freed from the deeper tissue. Both buried *ala nasi* were freed. An Ollier-Thiersch graft from the right arm was wrapped around a piece of Stent's plastic and buried in an incision just below the right lower palpebral margin, after the lower eyelid had been freed from the scar tissue. At the time of the meeting the patient was having thyroid gland extract, in a dose of 0.06 gramme (one grain) a day, and was receiving facial massage, which had loosened the skin considerably, preliminary to further plastic operation. Dr. Aspinall said that he showed the patient to demonstrate the preliminary stages of reconstruction of the face.

Fracture of the Pelvis and Complications.

Dr. Aspinall also showed a male patient, aged thirty-two years, who had been admitted to hospital on January 12, 1937, discharged on July 22, 1938, and readmitted on August 9, 1938.

On January 12, 1937, a trailer driven by the patient was hit by a car and overturned; he was caught with the pelvis between the wheel and the cabin. He was not unconscious. He had previously been in good health. At the time of admission he was suffering from shock. There were small cuts below the left elbow and above the left eye, and abrasions to both hands and arms. There was a tender swelling in the suprapubic and inguinal regions. Pain in the back occurred on compression of the pelvis. There was no loss of motor power in the limbs. Examination of a catheter specimen of urine showed no albumin, blood, pus, acetone or sugar. No abnormality was detected in the examination of the abdomen, the thorax or the central nervous system. A provisional diagnosis of fracture of the pelvis and rupture of the bladder was made.

X ray examination showed a complete fracture through the right ilium lateral to the sacro-iliac joint, with forward and lateral displacement of the sacrum; a fracture of the left transverse process of the fourth lumbar body and a fracture of the left ischium with separation of the *symphysis pubis*; compression fractures of the eighth and ninth vertebrae.

At first it was feared that the patient had anuria; but in two days after the administration of sodium sulphate solution and two drachms of gin, urine was being passed.

On January 20, 1937, an incision into a swelling at the base of the penis released two pints of foul urinous fluid. Osteomyelitis developed in the underlying bone, and pus was discharged for many weeks.

On March 19, 1937, a sinus developed in the medial side of the right thigh. X ray examination revealed absorption of the head of the femur and acetabulum, suggesting septic arthritis.

During succeeding months numerous incisions were made into an abscess in the region of the left hip joint. In September, 1937, the patient commenced to suffer from pyuria. On October 1, 1937, a Schmetz hook was inserted into the left femur and a Corlette splint applied with ten pounds extension. On November 7, 1937, the patient had acute retention of urine. On February 10, 1938, laparotomy was performed for a suspected perinephric abscess on the right side. Pus was found and the abscess of the kidney drained.

The patient became affected with confusional psychosis about March 9, 1938; but this cleared up and the patient was discharged for three weeks before being readmitted for nephrectomy on August 9, 1938. Since the performance of nephrectomy on August 25, 1938, the patient's general condition had progressively improved.

At the time of the meeting the left leg was 4.4 centimetres (one and three-quarter inches) shorter than the right, for which he wore a built-up heel to his shoe. A light jacket was being made for the relief of his spinal disorder.

Ulceration of the Vaginal Vault.

DR. A. J. CUNNINGHAM showed a married woman, aged thirty-seven years. In 1933 she had been subjected to appendicectomy and right oophorectomy at the Mater Misericordiae Hospital. On June 13, 1935, at Sydney Hospital dilatation of the cervix, curettage and cauterization of the cervix had been performed. The main symptom at that time was discharge *per vaginam*, of two years' duration, and the lesions were cervicitis, hypertrophy and laceration of the cervix. On April 19, 1936, at Sydney Hospital, trachelorrhaphy was performed, the main symptoms being vaginal discharge of three years' duration, which had not been cured by operation in 1935. Examination at that time showed a large, lacerated, eroded cervix and scarring of the vaginal vault on the left side. The diagnosis was chronic cervicitis. There was no report of biopsy from the cervix.

On April 30, 1937, the patient complained of a watery, offensive, blood-stained discharge, which had persisted for two months. She had also suffered from anorexia and nausea for two months. Examination disclosed a thickening of the vaginal vault on the left side and a raised circinate ulcerated area on the anterior and left surface of the vaginal portion of the *cervix uteri*. This area bled freely on being touched. A provisional diagnosis of superficial carcinoma of the cervix was made. A piece of tissue was removed for biopsy and the following report was returned:

(a) *Macroscopic*.—The specimen consisted of an irregular rather fragile piece of tissue. The appearances were suggestive of growth.

(b) *Microscopic*.—The sections show an ulcerated surface with granulation tissue. The histological appearances indicate an inflammatory reaction rather than a growth. Further sections show the same appearances of granulation tissue. While it is possible that an inflammatory reaction be superimposed on a growth I am unable to find any evidence of the latter condition.

On May 11, 1937, radium was applied for 5,500 milligramme-hours. There was no reaction to the Wassermann test.

On June 27, 1937, Wertheim's hysterectomy was performed. The left vaginal vault was very indurated and the vagina was excised below this. No enlarged internal iliac glands or obturator glands were found on either side. Glands along the common iliac vessels were not looked for. The lower part of the left ureter was difficult to isolate.

The pathological report on the excised tissue was as follows:

(a) *Macroscopic*.—A snipping from the vaginal vault appeared fibrosed on section. The uterus showed no obvious ulceration of the cervix.

(b) *Microscopic*.—Vaginal wall: Sections show a condition similar to that seen in the original sections of May 17, 1937. A group of giant cells is present. These appear to be foreign-body giant cells, probably due to the original biopsy (my comment is that the original biopsy was from the cervix and not from the vaginal wall). Cervix: There is no evidence of neoplastic change seen.

On July 12, 1937, post-operative examination disclosed some puckering of the vaginal vault. The patient was discharged from hospital.

The patient was readmitted to Sydney Hospital on September 4, 1938, with the complaint that she had been bleeding *per vaginam* (with clots) for three weeks and had suffered from lassitude and dyspnoea on exertion for six months. She had lost 12.6 kilograms (two stone) in weight in three years. Examination showed a pink ulcerated area, with raised, red, hard, clear-cut edges, around the vaginal vault. This extended more down the anterior wall. There were white patches on the anterior and posterior walls below this ulcerated area. These patches gave a positive reaction to Schiller's iodine test. There was great thickening around the left lateral fornix, and the left utero-sacral ligament was thickened or tense. No mass was felt in the pelvis. There was no reaction to the Wassermann test. There was a reaction to the Mantoux test (dilution 1 in 10,000) in twenty-four hours. The red blood cells numbered 4,170,000 per cubic millimetre; the haemoglobin value was 62%. No abnormality of the bladder mucosa or of the ureteric orifices was seen at cystoscopic examination.

On September 8, 1938, biopsy material was removed from the vaginal vault.

The pathological report was as follows:

Macroscopic.—Biopsy material consisted of two small pieces of whitish tissue; squamous epithelium was apparent in one.

Microscopic.—Sections were cut from both sides of the small piece of tissue received, but there was no obvious area of ulceration present. The capillary endothelial cells are, however, very swollen, a change often seen in the vicinity of an inflammatory focus. There is an excessive amount of keratin in some situations, but the epithelium is not otherwise abnormal. There is some oedema of the vaginal mucosa.

A scraping from the ulcerated area was obtained for injection into a guinea-pig. No report had been received at the time of the meeting.

Culture from a swabbing of the vaginal vault revealed diphtheroids and *Staphylococcus albus*. No tubercle bacilli were seen in a direct smear.

Fibromyomata of the Cervix Uteri.

DR. R. I. FURBER and DR. H. K. PORTER exhibited six museum specimens of cervical fibromyomata, which they had removed at operation. They explained that nearly all were single tumours which had developed mainly from the posterior lip of the cervix uteri and had then deviated in some degree to one or the other side.

The first complaint of three of the patients was sudden retention of urine, which coincided with the onset of menstruation and was due to the extra enlargement of the uterus. Dr. Furber and Dr. Porter said that cervical fibroids almost invariably dislocated the bladder and ureters to a considerable degree. In two of the cases the ureters could be easily palpated and ureteric catheterization had been attempted in all cases to make them more readily seen before and during operation. The urologist had not succeeded in inserting a catheter into the ureters in two of the cases, on account of the great distortion of the bladder. They had varied as regards the difficulty of removal, and sometimes this difficulty was extreme, the

main danger being injury to the ureters and bladder. In one case the fibroid had been firmly adherent to the bladder, which was very thin-walled and of a dark purplish colour (probably from venous congestion). The fibroid had been shaved off the bladder; but seven days later the bladder wall had sloughed away, causing a vesico-vaginal fistula, which had been cured at a subsequent operation. In this case the fibroid had not risen from the posterior lip of the cervix. When well developed, the os became crescentic or D-shaped, the convexity being opposite the tumour, somewhat similar to the alteration in the shape of the anus during parturition, and also to the urethra in unilateral enlargement of the prostate gland.

One of the fibroids demonstrated was the size of a small orange and was of special interest in that it contained a large cyst. This cyst was not due to a degenerate process in that it was completely lined by a layer of cubical epithelium. This was thought to be derived from a remnant of the Wolffian duct, where it passed through the postero-lateral portion of the cervix uteri.

Another tumour demonstrated weighed 5.9 kilograms (thirteen pounds) and was extensively calcified. This tumour, which filled the pelvis and reached up beneath the liver and ribs, had been difficult to remove, for one half of it was subperitoneal. Even though an incision extending from the xiphisternum to the symphysis pubis had been made, delivery had been very difficult.

Congenital Abnormality of the Right Ear.

DR. H. H. HARRISON showed a girl, aged four years, an abnormality of whose ear had been noticed at birth. The tragus was enlarged considerably and lay anteriorly against the cheek. There was a small blind sinus anterior to the tragus. The meatus was obliterated and the condyle of the mandible occupied the meatal cavity and articulated with the posterior meatal wall, as the tympanic component of the temporal bone appeared to be absent. X ray examination showed pneumatization of a moderate degree in the right mastoid area. The hearing was difficult to evaluate; but hearing by bone conduction appeared to be present. It was proposed to leave the meatus as it was, since the patient was a female, and to perform a plastic operation on the tragal area.

Chondroma of the Larynx.

Dr. Harrison also showed a man, aged sixty-seven years, who had a two years' history of hoarseness and increasing difficulty in breathing. Six months before the meeting examination had shown a rounded mass occupying the anterior portion of the right side of the larynx. On palpation with instruments through a laryngoscope the mass was found to be very firm and fixed to the side wall of the larynx. Biopsy yielded a flake of cartilage, the microscopic appearance of which suggested chondroma.

X ray examination showed partial calcification of the thyrooid cartilage; the appearances were consistent with calcification due to age.

Acute obstruction supervened, and tracheotomy was performed as an urgent measure. The patient desired operation. It was proposed to perform a laryngo-fissure with a view to inspection and removal of the tumour if possible. The patient had been warned that hemilaryngectomy or laryngectomy might have to be performed.

Tumour of the Neck Projecting into the Hypopharynx.

Dr. Harrison's next patient was a female, aged sixty-one years, who had been subjected to the operation of partial thyroidectomy twelve years before for exophthalmic goitre. The patient was well until one year before the meeting, when difficulty in swallowing and hoarseness appeared. These symptoms had become more severe. Small amounts of blood had been expectorated for the two weeks prior to the meeting.

Examination revealed an irregularly shaped firm mass occupying the lower portion of the neck. It was more evident on the right side and moved with deglutition. On endoscopic examination a large mass could be seen

bulging forward the wall of the right and posterior aspects of the hypopharynx. No ulceration could be seen; but veins were numerous on the surface of the mass, which appeared to be close to ulceration. The right vocal cord was paralysed. Dr. Harrison said that the question arose of whether the pharyngeal mass and the thyroid mass were one and the same or two different conditions. He had made a provisional diagnosis of malignant disease of the thyroid. Surgical exploration was to be undertaken; it would be followed by deep X ray therapy.

Specimens of Urological Interest.

DR. R. H. BRIDGE, DR. K. L. H. KIRKLAND and DR. A. C. TELFER, of the department of urology, displayed specimens and corresponding lantern slides. The slides were arranged to present the history, pyelograms and specimens of each condition. An endeavour was made in each instance to demonstrate the filling defect, shown pyelographically, with the actual lesion seen in the kidney.

Dr. Bridge demonstrated tuberculosis and neoplasm of the kidney.

Retrograde pyelography showed a filling defect in the upper pole of the right kidney of a man, aged fifty-three years, who had had symptomless intermittent hæmaturia for two years. The tumour seen in the kidney removed at operation belonged to the Grawitz type of renal carcinoma. A similar example of a "clear-cell" carcinoma of the kidney was seen in a kidney which had a filling defect in the middle calyceal system. This patient, aged sixty-two years, had had hæmaturia for six weeks. Dr. Bridge said that these two patients again demonstrated the importance of full urological investigation in hæmaturia.

Three retrograde pyelograms and corresponding specimens showed two types of typically tuberculous lesions in the kidney. An early tuberculous ulcer of the upper pole of a kidney removed from a man, aged thirty-nine years, was shown. The patient had had slight hæmaturia for three months before operation, and frequency of micturition, with slight scalding, for eight weeks.

Two more advanced tuberculous renal lesions were illustrated both by pyelograms and specimens from two patients. One patient, a woman, aged thirty-one years, had complained of great frequency of micturition for two and a half years, with suprapubic pain on retention of urine for any length of time. She had also occasional attacks of renal colic associated with the passage of blood clots. The other patient, a man, aged forty-eight years, had had frequency of micturition for three months and hæmaturia for two months. Dr. Bridge said that these tuberculous renal lesions called for extreme care in nephrectomy. He took special care in dealing with the stump of the ureter. He excised as much of the ureter as possible, and cauterized the stump. He pointed out too that these three patients illustrated the difficulty in excretory urography. In all three no iodine had been excreted by the tuberculous kidney. The retrograde pyelogram, however, gave a very good indication of the nature of the lesion. Dr. Bridge also emphasized the importance of after-care in the treatment of urogenital tuberculosis.

Dr. Kirkland demonstrated slides showing renal calculi, together with the corresponding specimens. He showed some uric acid stones not detected by X rays, and phosphatic calculi of unusual shape, X ray examination having failed to give any real idea of the shape. He also showed specimens of bilateral renal calculi. He had removed both collections of calculi, and an excretory pyelogram after the second operation had shown both kidneys free of stones and with restored renal function. In addition, Dr. Kirkland presented the pyelograms and specimen obtained from a woman, aged thirty-nine years, who had had gross hæmaturia for approximately two years. The pyelogram showed a marked filling defect in the middle calyceal system. A preoperative diagnosis of neoplasm had been made. Section of the removed kidney revealed congenital cysts occupying the whole of the middle calyceal system and bulging into the pelvis. In discussing this case Dr. Kirkland said that both the

pyelogram and the kidney, as it had presented at operation, had justified the tentative diagnosis of neoplasm, and in addition the hæmaturia was so gross and so worrying to the patient that nephrectomy seemed justified.

Dr. Telfer demonstrated by slides and specimens hydronephrosis in young men, aged twenty-one and seventeen years respectively. In one a posterior fibrous band enclosing an abnormal renal artery had been divided at operation, and when this had been freed adequate drainage of the dilated pelvis occurred. In the other no constricting band had been found, and as no plastic operation seemed advisable, nephrectomy was performed. As far as could be found, both at operation and from the specimen, the condition in the second hydronephrosis was due to so-called achalasia of the pelvi-ureteral junction. The various plastic procedures in hydronephrosis were discussed, and Dr. Telfer spoke of the difficulties attending these procedures and said that post-operative statistics of the results were very varied. In very few long-standing cases had the operations been reported as successful, and many patients returned for secondary nephrectomy. Much more work had to be done on these cases of ureteral sympathetic imbalance, and no generalization could at present be made. In each case the condition must be treated on its merits at the time of operation. The preoperative diagnosis of the actual lesion at the pelvi-ureteral junction causing hydronephrosis was very difficult. In the two cases discussed the pyelographic pictures were identical.

X Ray Films.

DR. D. G. MAITLAND showed a series of X ray films demonstrating the value of radiology in obstetrics. They disclosed early pregnancy, the position and lie of the fœtus, and whether more than one fœtus was present. Several films showed fetal deformities diagnosed prior to parturition. Others indicated fetal death. A series also showed the advantages of excretion pyelography, and included a film illustrating *placenta prævia* in a cephalic presentation. This film had been obtained after the injection of sodium iodide solution into the bladder.

DR. J. G. EDWARDS and DR. H. M. CUTLER showed a series of X ray films. Films of acute miliary tuberculosis and of an early stage of silicosis showed the difficulty in differential diagnosis between those conditions from the radiological aspect and the necessity for clinical examination to make a diagnosis possible.

Two films showing the alteration of the fetal position in a few hours suggested the necessity for rapid exposures to prevent a wrong diagnosis of multiple pregnancy.

A large lipoma of the back, casting a dense shadow over the lung field, gave an appearance very like a mediastinal tumour and showed the necessity for fluoroscopy in these cases. Skiagrams obtained after lipiodol injection in cases of bronchiectasis were on view, with films taken years later, to show the confusing shadows cast by retained lipiodol.

Graham's test had been used to distinguish between a calcified hydatid cyst and a large gall-stone; the hydatid cyst could be seen pressing on the dye-filled gall-bladder.

Other films showed various gastric and duodenal ulcer deformities, duodenal diverticula and various tumours of bone.

Medical Societies.

THE MEDICAL DEFENCE SOCIETY OF QUEENSLAND.

THE annual meeting of the Medical Defence Society of Queensland was held at British Medical Association House, 225, Wickham Terrace, Brisbane, on February 2, 1939, DR. A. H. MARKS, the President, in the chair.

Annual Report and Financial Statement.

The annual report of the Council and the financial statement for the year ended December 31, 1938, were presented and adopted on the motion of Dr. A. H. Marks, seconded by Dr. G. W. Macartney. The report and statement are as follows.

The Council has pleasure in presenting the following report of the Society for the year ended December 31, 1938.

Membership.—The total membership of the Society is 371, exclusive of seven members whose subscription for the year 1938 has not been paid. Our gains have been: new members 13, members reinstated 8, making a total of 21. Losses have been as follows: resignations 6, left the State 5, deceased 7, unfinancial members 7.

As last year's membership was 375, there has been a loss of four members this year.

We regret to record the death of the following members: Dr. W. N. Robertson, who was a foundation member of the Society and who was a member of the Council at the time of his death, Dr. E. Sandford Jackson, Dr. F. A. Hope Michod, Dr. Eustace Russell, Dr. George Thomson, Dr. P. N. Macgregor, of Brisbane, and Dr. W. G. Fearney, of Charters Towers.

Office-Bearers and Council Elected for 1938.—President: Dr. Alex. H. Marks; Vice-President: Dr. S. F. McDonald; Honorary Secretary, Dr. Neville G. Sutton; Honorary Treasurer: Dr. R. G. Quinn; Councillors: Dr. A. G. Anderson, Dr. Gavin H. Cameron, Dr. G. W. Macartney, Dr. W. N. Robertson, Dr. H. S. Waters, Dr. Kenneth Wilson, Dr. L. P. Winterbotham.

In conformity with Article 48, Dr. W. N. Robertson, Dr. A. B. Carvosso and Dr. G. W. Macartney retired. Dr. Carvosso did not seek reelection, and Dr. Robertson and Dr. Macartney were reelected. Dr. L. P. Winterbotham and Dr. Gavin Cameron were elected to fill the other vacancies. An extra vacancy occurred owing to the death of Dr. Donald Cameron, which had not previously been filled. Subsequently Dr. Horace W. Johnson was appointed to the vacancy caused by Dr. Robertson's death.

The Council would like to record its appreciation of the long and valued services of Dr. Carvosso, who had been a member of the Council since the inauguration of the Society in 1901.

Medico-Legal.—During the year four cases were submitted to the Council, three of which were referred to the Society's solicitors. In the fourth case the Council advised the member of the action to be taken.

Finance.—The total assets of the Society are £4,751 13s. 10d., all of which is invested in Australian consolidated treasury bonds and stock. The total expenditure amounted to £61 11s. 6d., £54 10s. 6d. being for current expenses and £7 1s. legal costs. An amount of £219 15s. 3d. was received from entrance fees and annual subscriptions, and income from investments totalled £180 14s. 4d. The year's operations have resulted in a surplus of income over expenditure of £341 1s. 4d.

Election of Members of the Council.

Dr. A. G. Anderson, Dr. Neville G. Sutton and Dr. H. S. Waters, who had retired in conformity with the by-laws of the Society, were reelected as members of the Council for the ensuing year.

Messrs. R. G. Groom and Company, Chartered Accountants (Australia), were reelected auditors.

Post-Graduate Work.**COURSE IN PSYCHIATRY IN SYDNEY.**

THE New South Wales Post-Graduate Committee in Medicine has arranged a course in psychiatry, which will be held from March 3 to 24, 1939. The course will consist

of five lectures, to be given on Friday and Wednesday afternoons, at 4.30 p.m., at the Robert H. Todd Assembly Hall, 135, Macquarie Street, Sydney, as follows:

Friday, March 3.—Introductory: Professor W. S. Dawson; "Infancy and Childhood": Dr. D. W. H. Arnott.

Wednesday, March 8.—"Adolescence": Dr. J. A. H. McGeorge.

Friday, March 10.—"Adult Life": Dr. C. H. Swanton.

Wednesday, March 15.—"Menopause": Professor W. S. Dawson.

Friday, March 17.—"Pyrexial Therapy": Dr. G. P. U. Prior.

Two demonstrations will also be given at the Royal Prince Alfred Hospital, as follows:

Wednesday, March 22.—Clinical demonstration at 3 p.m.

Friday, March 24.—Clinical demonstration at 3 p.m.

The fee for the course will be two guineas. The course will not be held unless eight applications are received. Applications for registration, which must be accompanied by a remittance for the amount of the fee, must be made to the Secretary, New South Wales Post-Graduate Committee in Medicine, The Prince Henry Hospital, Little Bay.

POST-GRADUATE COURSES IN GERMANY.

THE German authorities for post-graduate medical instruction have arranged the following international courses for the summer of 1939:

In Hamburg, at the Dermatology Clinic, University, June 26 to July 1, 1939.—Dermatological and venereal diseases, ray therapy. Fee: RM 60.

In Hamburg, at the University Röntgen Institute, July 3 to 8, 1939.—Radiology (especially X ray treatment). Fee: RM 60.

In Vienna, at the Dermatology Clinic, University, June 26 to July 1, 1939.—Dermatological and venereal diseases, ray therapy. Fee: RM 60.

In Vienna, at several clinics, July 3 to 15, 1939.—Cosmetics and plastics (dermatological, surgical, otological under-sections). Fee for the total course: RM 120. (a) Dermatological part (July 3 to 5, 1939), fee RM 30. (b) Surgical part (July 6 to 12, 1939), fee RM 70. (c) Otological part (July 13 to 15, 1939), fee RM 35.

In Vienna, at the Surgical Clinic, University, July 17 to 22, 1939.—Urology. Fee: RM 60.

In Vienna, at the General Hospital, July 17 to 22, 1939.—Diseases of the teeth, mouth and jaw. Fee: RM 70.

In Vienna, at the Surgical Clinic, University, July 24 to 29, 1939.—Thoracic surgery. Fee: RM 70.

In Cologne, at the Surgical Clinic, University, July 31 to August 5, 1939.—Abdominal surgery. Fee: RM 70.

In Cologne, at the University X-ray Institute, August 14 to 15, 1939.—Röntgenology for accident surgery. Fee: RM 30.

In Cologne, at the Orthopaedic Clinic, University, August 16 to 19, 1939.—Orthopaedics. Fee: RM 60.

In Hohenlychen, at the Sanatorium, August 21 to 23, 1939.—Plastic surgery; treatment by means of exercises and compensatory athletics. Fee: RM 35.

In Vienna, at the General Hospital, July 31 to August 5, 1939.—The cranium in Röntgenology and clinic. Fee: RM 30.

In Munich, at the Medical Clinic, University, June 26 to July 1, 1939.—Röntgenology for internists and surgeons. Fee: RM 60.

In Breslau, at the Medical Clinic, University, May 26 to June 2, 1939.—Diagnostics of the diseases of the digestion and the stomach. Fee: RM 35.

- In Munich, at the Medical Clinic, University, July 3 to 8, 1939.—Diseases of the blood, nerves and joints, of metabolism; endocrinology; vitamins. Fee: RM 50.
- In Vienna, at the Medical Clinic, University, July 10 to 15, 1939.—Dietetics. Fee: RM 50.
- In Berlin, at the Rudolph Virchow-Krankenhaus, July 17 to 22, 1939.—Infectious, heart, circulation and kidney diseases. Fee: RM 50.
- In Lübeck, at the General Hospital, July 24 to 29, 1939.—Allergy. Fee: RM 50.
- In Frankfurt-am-Main, at the Neurological Clinic, University, July 31 to August 5, 1939.—Neurology, psychiatry, psychotherapy. Fee: RM 50.
- In Berlin, at the University Paediatric Clinic, Kaiserin Auguste-Viktoria-Haus, Kaiser- und Kaiserin Friedrich Krankenhaus, June 26 to July 1, 1939.—Paediatrics: Prophylaxis in childhood, nutrition, diseases connected with metabolism; neurology, psychiatry, questions connected with children difficult to bring up; hereditary pathology. Fee: RM 50.
- In Cologne, at the Paediatric Clinic, University, July 3 to 8, 1939.—Paediatrics: Infectious diseases and diseases of the circulation and kidneys; allergy, social welfare. Fee: RM 50.
- In Leipzig, at the Gynaecological Clinic, University, July 3 to 8, 1939.—The old and modern therapeutic tasks of the gynaecologist. Fee: RM 70.
- In Leipzig, at the Gynaecological Clinic, University, July 10 to 15, 1939.—Functional gynaecology. Fee: RM 70.
- In Tübingen, at the Otological Clinic, University, June 26 to July 3, 1939.—Otology, rhinology, laryngology. Fee: With operation course, RM 150; without operation course, RM 100.
- In Halle, at the Eye Clinic, University, June 26 to July 1, 1939.—Ophthalmology. Fee: RM 75.

All courses will be held in the German language. The number of participants is limited. Information and prospectuses may be obtained from *Ärztliches Fortbildungswesen*, Berlin, N.W.7, Robert-Kochplatz 7, Kaiserin-Friedrich-Haus.

All doctors with full German citizenship (*Reichsbürger*) as well as doctors of foreign nationality may take part. Foreign doctors and German doctors resident abroad receive a 60% reduction in fares on the German State railways, and through the purchase of "Register Marks" with foreign currency doctors resident abroad will make a considerable saving; foreign doctors are advised to consult a bank in their own country before their departure.

Congresses.

THE PAN-PACIFIC SURGICAL ASSOCIATION.

The Pan-Pacific Surgical Association will hold a congress in Honolulu from September 15 to 28, 1939. This will be the third meeting of the Pan-Pacific Surgical Association, the two former meetings having also been held in Honolulu during 1929 and 1936. An invitation is extended to all surgeons from countries of the Pacific area, including Australia, New Zealand, China, Japan, Java, Canada and the United States of America to meet for an interchange of surgical thought and for the purpose of bringing about better understanding through personal contact among the surgeons of these countries. There will be sections in fractures and orthopaedics, general surgery, gynaecology, motion pictures, neurosurgery, ophthalmology, otolaryngology, Röntgenology, plastic surgery, thoracic surgery and neurology. The congress affords not only participation in interesting scientific papers, but a most enjoyable vacation in the "Paradise of the Pacific".

Communications for information should be directed to Dr. Frederick L. Reichert, Stanford University Hospital, San Francisco, programme chairman for the United States of America; Dr. Howard Updegraff, 6777, Hollywood Boulevard, Los Angeles, programme vice-chairman; Dr. Forrest J. Pinkerton, Secretary-Treasurer of the Association, Young Building, Honolulu, Hawaii; or H. G. Wheeler, Secretary, Royal Australasian College of Surgeons, Spring Street, Melbourne.

Obituary.

EUSTACE RUSSELL.

THE death of Dr. Eustace Russell, of Brisbane, which has already been recorded in these pages, is a loss to the State of Queensland and to the whole medical profession of the Commonwealth. His erudition, his wit and his force of character compelled attention; the depth of his medical knowledge commanded respect. He was a tower of strength to many a colleague troubled either by bodily ill health or mental anguish; and he was so straightforward himself that he could brook neither pretence nor equivocation.

Eustace Russell was born at Middlesbrough, Yorkshire, England, on February 7, 1884, and was the son of the late Robert Russell, steel merchant. Starting his education at Sir William Turner's school at Coaltham, he subsequently became an undergraduate in the Faculty of Medicine at the University of Edinburgh. He was a successful student and obtained his "blue" for football. He graduated as Bachelor of Medicine and Bachelor of Surgery in 1906. In 1929 he took his degree as Doctor of Medicine, and the following year became a member of the Royal College of Physicians of Edinburgh. In 1937 he had the distinction of being elected a Fellow of that college.

Russell started practice at Stanthorpe, Queensland, and subsequently moved to Brisbane, where he confined his attention to the practice of internal medicine. From 1915 to 1917 he saw active service with the Australian Army Medical Corps; at the time of his death he was a captain on the reserve list. In 1917 he became honorary physician at the Brisbane Hospital, and held the position for twenty years. In 1937 he became honorary consulting physician. He was lecturer in medicine at the School of Dentistry, University of Queensland. In 1934 Russell delivered the Halford Oration at Canberra, and he was recently appointed a member of the Senate of the University of Queensland.

Dr. Charles E. Wassell writes:

On the untoward day on which Eustace Russell was taken from us it might have been truly said that "A great man is fallen in Israel today".

He was, as his qualifications and position show, in the front rank of his profession. As senior physician at the Brisbane General Hospital for many years he did a great deal of good work, notably the establishment of a diabetic clinic, which he raised to a high standard of efficiency. He also took an active interest in the affairs of the hospital and the medical and nursing staffs. He was indefatigable in his efforts always to increase the efficiency of the service at the Brisbane Hospital by paying attention not only to major points of policy, but also, and particularly, to every little detail; in this latter regard he was a strict disciplinarian.

Dr. Russell was a man endowed with many gifts from the gods: a brilliant brain, a keen sense of humour; indeed few have equalled him as an after-dinner speaker and general raconteur; a nature genuinely sympathetic with the underdog, and always willing to extend a helping hand to younger members of his calling and new arrivals in the town.

He faced smilingly grave physical disabilities, including a severe gunshot wound in the arm, from which intermittently he suffered considerable pain.

Knowledge and wisdom are two very different things; a man may be filled with one and have very little of the other. This man possessed both. His knowledge of books was extensive, including an intimate knowledge of the Bible, from which he frequently quoted. Many men in various walks of life, as well as medical students and young men starting practice, have benefited by his singularly wise advice and practical help. He was a man who had the courage of his convictions, and always stated them breezily and bluntly, without fear or favour. There was never any doubt where Eustace Russell stood; would there were more like him. Perhaps the best test of a man or woman is in the pleasant place of home, and there, with a wife he adored, and six promising sons (one of whom is already following his father's profession), he was at his best and supremely happy. His comparatively early death came as a great shock and loss to the community at large.

There are those who indulge in what is sometimes called "the larger hope". Let us in this instance be one of them and sincerely hope that this wise, capable, cheery soul is still carrying on in some better and wider sphere.

Dr. J. V. Duhig writes:

On the death of a friend we commonly and almost heedlessly say that we cannot believe he is gone; yet when Eustace Russell died so suddenly I never felt anything so true as that trite saying. For almost twenty years I saw and spoke to Russell nearly every day; for many years past we had adjoining rooms, and it was a rare day that he did not visit me. With that and his vitality he became a very vivid and almost necessary part of the life around me. Such deep impressions of twenty years are not effaced in weeks, and I still listen in the evenings for his strong springing step and his voice down my corridor. Before we left for home in the afternoon of the day he died he had come in to tell a joke and a story and quote Shakespeare or the "Ingoldsby Legends", and leave with a song on his lips and the few little step-dance movements that all who knew him will so well remember. I have never known anybody with so much energy and vitality or who lived with such gusto. His taste in poetry was very characteristic, confined mainly to Shakespeare and the "Ingoldsby Legends", long passages from both of which he would quote with savour and emphasis. His taste in this way was typical of his directness and impatience of humbug and falsehood. His caustic tongue was reserved solely for what he thought wrong, while for what he thought right and proper and commendable he was enthusiastic and warmly generous in its support. His high integrity, his intellectual strength and north country shrewdness marked him for a leader in any group of which

he formed a part. I knew him intimately all his professional life, and there was no position of trust or leadership he did not fill with honour and dignity, both inside and outside his profession. He had been President of the Queensland Branch of the British Medical Association, President of the Brisbane Hospital Staff, President of the Advisory Committee of the Brisbane Hospital Board, senior honorary physician to the hospital, to name only a few of the high posts he so honourably and so naturally filled. In debate he was always blunt, sometimes scathing, but afterwards he became with his opponent the laughing, generous friend.

He had a great love of congenial company and all that that implies—the cup of fellowship, jokes of all hues, and merry-making of a robust manly kind. In club life nobody could have been more popular, and so great was the

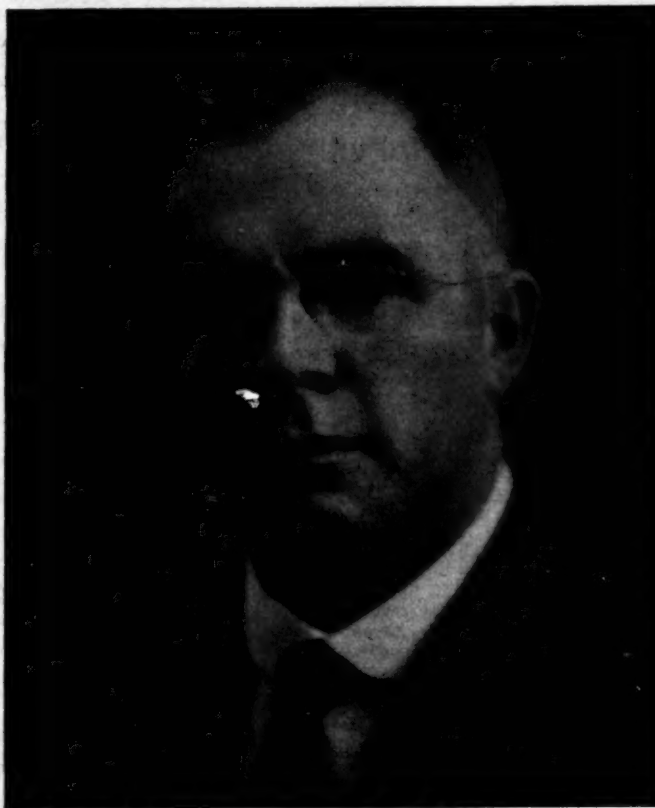
demand on his celebrated power of witty oratory that he became almost a professional after-dinner speaker. He did that sort of thing to perfection. All who knew him can remember him speaking at dinner, his already ruddy face flushed and his eyes gleaming through his spectacles, like Mr. Pickwick's, and his bulky frame heaving with mirth as in his precise English voice he told a very mature story with supreme tact and delicacy.

His professional work was, like himself, thorough, honest and full of vigour. For over twenty years he was an honorary physician to the Brisbane Hospital, and for most of the time senior physician and senior honorary. I was in a specially good position to see the work of my clinical colleagues, and I know that Russell was a very good physician, a very good teacher and, most important of all, a very good and

kind doctor. The hard discipline he imposed on his juniors eventually made them good doctors too, and lifelong friends. All those who passed through his hands and whom he trusted and taught inevitably did well afterwards in practice.

And with his devotion to his medical work he was deeply devoted to its principles and professional interests. One of the most momentous decisions ever made was that by Russell to resign all his hospital appointments, professional and administrative, a couple of years ago as a protest against what he believed to be injustice to his colleagues.

To have to take this step was naturally a shock which he felt acutely for a long time, but he later had the consolation of being asked by the unanimous wish of his colleagues to stand for election to the Senate of the University of Queensland, and of being returned unopposed. Even in his all too tragically short tenure of office the impress of his strong personality was left on his fellow senators. He was very proud too of being State Censor and



Councillor of the Royal Australasian College of Physicians, of which he was a founder and for which he acted as examiner just before his untimely death.

I first met him when I was a junior on the staff of the military hospital at which Russell was a patient, having been badly wounded in the left shoulder. The attachments he formed in military life became lifelong, and the returned soldier had no better friend than Russell, a fact made plain by the attendance of so many returned men at his funeral.

To me Russell was a kind, generous and trusted friend, who gave me much sound and shrewd advice in many crises of my career, and I am sure the number who can say that too must be legion. I still miss him acutely, and I know that his death meant a terrible loss to medicine and the community of Queensland.

JAMES MORISON GARDINER.

We regret to announce the death of Dr. James Morison Gardiner, which occurred on February 15, 1939, at Ballarat, Victoria.

ALFRED JOHN SPENCER CECIL ROBERTS.

We regret to announce the death of Dr. Alfred John Spencer Cecil Roberts, which occurred on February 19, 1939, at Toowoomba, Queensland.

PERCY MOORE WOOD.

We regret to announce the death of Dr. Percy Moore Wood, which occurred on February 27, 1939, at Strathfield, New South Wales.

Correspondence.

THE "KENNY TREATMENT" OF POLIOMYELITIS.

Sir: I am forwarding you herewith a copy of the report of Dr. W. R. Forster, M.D., M.S., F.R.C.S., and Dr. E. E. Price, M.D., F.R.C.S., F.R.A.C.S., of Melbourne, Victoria, Australia.¹

You will notice in the conclusions of the report the announcements reading:

We are of the opinion that Miss Kenny has made a definite contribution to the treatment of poliomyelitis.

1. She has provoked a critical and in several respects beneficial review of the treatment of poliomyelitis in general.

2. She has drawn attention to the evils of improper splinting.

3. She has contributed to the knowledge on the subject of stiffness, and has emphasized the value in this respect of full and more frequent movements beginning in the third week.

As this is the third report issued since January, 1938, to January, 1939, an explanation is necessary.

The report of the Royal Commission of Investigation on the Treatment of Paralysis, appointed by the Queensland Government, was submitted in January, 1938. This commission had been operating two years, during which time not one patient treated by the Kenny method had been observed. An opportunity did arise for this observation, and I sought a bed for the patient in the hospital

for children in order that they might observe the different symptoms and phases of the disease and the Kenny method of combating these special symptoms. The application for beds was refused by the commission. The patients under observation by this commission were, for the most part, patients the orthopedic section of the commission had treated for a considerable period. Their conclusions were based upon evidence collected from different parts of the world, and as they themselves admitted, from all English-speaking clinics. One of their number, Dr. Lahz, visited Great Britain, and another member, Dr. Duhig, visited America, Russia and Germany. Personally, I think they are to be highly commended for their painstaking efforts, and their summing up was an honest opinion deduced from this evidence and the evidence submitted by specialists in Australia, and reads:

We are now in a position to sum up this discussion of the Kenny method of treatment of poliomyelitis.

1. The abandonment of immobilization is a grievous error, and fraught with great danger, especially in very young children who cannot cooperate in reeducation.

2. The Kenny system of reeducation is partially efficient, being marred by Miss Kenny's failure to recognize the dangers of muscle stretching and lengthening, a serious fault.

3. The Kenny method of treating contractures is not nearly as efficient as other well-established methods, well tested by experience.

4. Deals only with apparatus and staff, and has no bearing on treatment.

5. It would be particularly damaging to adopt the Kenny non-splinting method of treating early cases owing to its failure to prevent injury due to overstretching and deformity due to muscular imbalance.

In September, 1938, a report was issued by a committee of prominent orthopedic men and neurologists appointed by the London County Council.

This committee did observe the Kenny method of treatment of early cases of poliomyelitis, but not the Kenny method of treatment of the disease of poliomyelitis. Their report absolutely contradicts the statements made by the Royal Commission of Investigation, Queensland. In their summing up the Royal Commission state:

The abandonment of immobilization is a grievous error, and fraught with great danger, especially in very young children who cannot cooperate in reeducation.

The London committee state (in number 5 of their observations):

Avoidance of generally accepted methods of immobilization: In this principle Miss Kenny appears to differ fundamentally from what is described as the orthodox view.

and go on to state:

Apart from some degree of contracture of the *tendo Achillis* in a few cases, which were overcome later, we have seen the development of no contractures while the patients were recumbent and well supervised, nor have we found evidence that her refusal to put paralysed muscles in the position of relaxation has caused delay in initial return of power.

This statement from observation sweeps aside the summing up of the Royal Commission in all points.

1. Their deductions that "The abandonment of immobilization is a grievous error, and fraught with great danger".

2. That the non-splinting methods induce deformity due to muscular imbalance.

3. This statement also proves no contractures occur, while the fact that the Royal Commission refer to the methods, Kenny and orthodox, proves that contractures do occur in orthodox cases and endeavours are made to correct them.

¹ The report was published in the issue of February 25, 1939, at the request of the Chairman of the Infantile Paralysis Aftercare Committee (Victoria).—Editor.

It is very much to be regretted that my time at the London County Council Hospital had expired immediately after I had brought to the notice of these gentlemen the condition of muscle spasm present to a more or less degree in every case of infantile paralysis. I opened the subject immediately upon my return from Australia to England in April, 1938, which was the first occasion I had met the committee. This committee remarked this phase was new to them, and I introduced several specimens of patients in spasm after many years of orthodox treatment.

The third report is the report accompanying this letter, and you will see upon perusal:

That deformities did develop during orthodox treatment and did not during Kenny treatment.

You will also see:

That pain and stiffness disappeared more quickly with Kenny method than did with cases they themselves treated or received from other surgeons. They also suggest a reason why should be earnestly sought.

This committee also state in reference to deformities: that expected deformities from unbalanced muscle pull did not materialize; but on the other hand many cases of deformity had occurred in splinted patients. We feel this calls for comment.

You will read with interest the comment of this committee re muscle spasm on page 10, and conclude by announcing:

We are of the opinion that Miss Kenny has made a definite contribution to the treatment of poliomyelitis.

I am willing to give this contribution to the medical profession and their attendants if they so desire.

In my opinion quite a lot of damage is caused through the lack of knowledge of the symptom I have had the honour and privilege of bringing before the notice of the medical profession in Victoria.

Thus it will be seen that further research is necessary, both clinically and academically, into this disease, which has during the past year affected about 4,000 of the children of Australia and many thousands elsewhere.

A satisfactory treatment for all difficult cases is not yet in operation for many diseases, including poliomyelitis. I have much data in my possession which would be helpful to all concerned if I had the assistance of an orthopaedic surgeon to present it.

Yours, etc.,

E. KENNY.

Elizabeth Kenny Clinic,
George Street, B.14,
Brisbane.

February 15, 1939.

SHORTAGE OF DOCTORS IN VICTORIA.

SIR: Dr. Rule has rendered a great service by indicating the businesslike method which medical practitioners are provided for in outback districts in Alberta, Canada.

Nothing has impressed me more than the intense desire of people living in country areas, especially expectant mothers, to have at hand a practitioner and a well-equipped hospital.

The Victorian Bush Nursing Association has provided the hospital and the best of nurses.

I propose to circulate his letter to our 71 centres, and especially where doctors are scarce, so that they may understand what is done in other remote places. But the cooperation of the British Medical Association would be most helpful.

It is no use stating that there is no shortage of practitioners. There are 51 hospitals and some 19 centres. Two of the hospitals, namely, Tongala and Katamatite, may close temporarily for want of practitioners, though they have been supplied for many years. Four others

have closed indefinitely, and in three of the districts there had been a practitioner for a long period. But the demand is indicated by the fact that five districts are negotiating for the erection of hospitals, and in one of them handsome local assistance is offered, that is, £1,500 in two donations.

One would think that a good practitioner with a beautifully constructed and excellently staffed hospital at his disposal would prefer an independent and useful life in the country to a suburban practice. The country people want them, and show their sincerity by spending very large sums of money on hospital construction. All that is wanted is the cooperation of the profession.

Yours, etc.,

JAMES W. BARRETT.

103-105, Collins Street,
Melbourne,
February 15, 1939.

NATIONAL HEALTH INSURANCE.

SIR: I write to support Dr. Cowan's remarks in his letter in your edition of February 13 regarding the *National Insurance Act*. What are those in authority doing to combat this pernicious act? We know that Federal councils are elected, councils of the British Medical Association are elected, publicity committees are elected, an especial committee is elected particularly to deal with this act, plebiscites innumerable, some official and some unofficial, have been taken. These all show that an overwhelming majority of the members of the profession are bitterly opposed to the act. In spite of all this, as far as the professional man in the street knows, nothing whatever is being done of a vigorous and decisive nature. A meeting of the Cabinet is to be held at Canberra shortly to decide the fate of the *Insurance Act*. Surely a strongly worded statement that, commission or no commission, a huge majority of the medical men of Australia will have absolutely nothing to do with the act and that they will politically oppose those members of Parliament who attempt to force it down their throats, will turn the scale against the act. If the members of the various committees are unwilling to assist in actively opposing the act, as Dr. Cowan says, it is time we elected some who will do so. This crisis is probably the most critical that the Australian Branch of the British Medical Association has ever faced. One sometimes wonders whether our committee-men are not rather swept along with the tide against their own inclinations, than that they are genuinely battling whole-heartedly in the interest of those men who elected them.

Yours, etc.,

HARRY H. LEE.

Wollongong,
New South Wales,
February 20, 1939.

Books Received.

ESSENTIALS OF MEDICAL ELECTRICITY, by E. P. Cumberbatch, M.A., B.M., D.M.R.E., F.R.C.P.; Eighth Edition, revised and enlarged; 1939. London: Henry Kimpton. Demy 8vo, pp. 542, with 15 plates and 147 illustrations. Price: 12s. net.

CLINICAL STUDIES IN PSYCHOPATHOLOGY: A CONTRIBUTION TO THE ETIOLOGY OF NEUROTIC ILLNESS, by H. V. Dicks, M.A., M.D., M.R.C.P.; 1939. London: Edward Arnold and Company. Demy 8vo, pp. 248. Price: 12s. 6d. net.

A GLASGOW MANUAL OF OBSTETRICS, by S. J. Cameron, M.B., F.R.F.P.S., F.C.O.G., J. Hewitt, M.B., Ch.B., F.C.O.G., R. A. Lennie, M.D., F.R.F.P.S., F.C.O.G., and E. D. Morton, M.B., Ch.B., M.C.O.G.; Third Edition; 1939. London: Edward Arnold and Company. Demy 8vo, pp. 654, with illustrations. Price: 21s. net.

Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

- Paton, Jean Sinclair, M.B., B.S., 1939 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown.
 Champain, John Vance, M.B., B.S., 1936 (Univ. Sydney), Molesworth Street, Tenterfield.
 Moyes, James Murray, M.B., B.S., 1939 (Univ. Sydney), St. George District Hospital, Kogarah.

The undermentioned has applied for election as a member of the Victorian Branch of the British Medical Association:

- Walker, Herbert Frederick, L.R.C.P., L.R.C.S. (Edinburgh), L.R.F.P. & S. (Glasgow), 252, Pakington Street, Geelong West.

The undermentioned have been elected members of the Victorian Branch of the British Medical Association:

- Burnside, Kennedy Byron, M.B., B.S., 1937 (Univ. Melbourne), Alfred Hospital, Prahran, S.1.
 Brent, Oscar Redding Peirce, M.B., B.S., 1937 (Univ. Melbourne), 85, Brunel Street, East Malvern.
 Churches, Clifford Kelvin, M.B., B.S., 1936 (Univ. Melbourne), Children's Hospital, Carlton, N.3.
 Lauricella, Salvatore Gaetano, M.B., B.S., 1937 (Univ. Melbourne), 266, Malvern Road, Glen Iris, S.E.6.
 MacKenzie, Lady Winifred Iris Evelyn, M.B., B.S., 1924 (Univ. Melbourne), 4A, Burnie Street, Toorak, S.E.2.
 Robertson, Thomas Ernest Guyatt, M.B., B.S., 1938 (Univ. Melbourne), Alfred Hospital, Commercial Road, Prahran.
 Watson, John, M.B., B.S., 1935 (Univ. Melbourne), Infectious Diseases Hospital, Fairfield, N.20.

Diary for the Month.

- MAR. 7.—New South Wales Branch, B.M.A.: Organization and Science Committee.
 MAR. 10.—Queensland Branch, B.M.A.: Council.
 MAR. 14.—Federal Council of B.M.A. in Australia (Melbourne).
 MAR. 14.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
 MAR. 14.—New South Wales Branch, B.M.A.: Ethics Committee.
 MAR. 21.—New South Wales Branch, B.M.A.: Medical Politics Committee.
 MAR. 22.—Victorian Branch, B.M.A.: Council.
 MAR. 24.—Queensland Branch, B.M.A.: Council.
 MAR. 28.—New South Wales Branch, B.M.A.: Council (Quarterly).
 MAR. 30.—South Australian Branch, B.M.A.: Branch.
 MAR. 30.—New South Wales Branch, B.M.A.: Annual Meeting.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser", pages xviii to xx.

- CHILDREN'S HOSPITAL, CARLTON, VICTORIA: Staff Vacancies.
 DEPARTMENT OF PUBLIC HEALTH, PERTH, WESTERN AUSTRALIA: Medical Officer.
 IPSWICH HOSPITALS BOARD, IPSWICH, QUEENSLAND: Resident Medical Officer.
 SYDNEY HOSPITAL, SYDNEY, NEW SOUTH WALES: Honorary Officers.
 THE BRISBANE AND SOUTH COAST HOSPITALS BOARD, QUEENSLAND: Assistant Obstetrician.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCHES.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 135, Macquarie Street, Sydney.	Australian Natives' Association. Ashfield and District United Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Leichhardt and Petersham United Friendly Societies' Dispensary. Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney. North Sydney Friendly Societies' Dispensary Limited. People's Prudential Assurance Company Limited. Phoenix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association, Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
QUEENSLAND: Honorary Secretary, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17.	Brisbane Associate Friendly Societies' Medical Institute. Proserpine District Hospital. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.
SOUTH AUSTRALIAN: Secretary, 178, North Terrace, Adelaide.	All Lodge appointments in South Australia. All Contract Practice Appointments in South Australia.
WESTERN AUSTRALIAN: Honorary Secretary, 205, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street Glebe, New South Wales. (Telephones: MW 2651-2.)

Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such a notification is received within one month.

SUBSCRIPTION RATES.—Medical students and others not receiving THE MEDICAL JOURNAL OF AUSTRALIA in virtue of membership of the Branches of the British Medical Association in the Commonwealth can become subscribers to the journal by applying to the Manager or through the usual agents and book-sellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rates are £2 for Australia and £2 5s. abroad per annum payable in advance.